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ABSTRACT

A review of four quasi-experiments on family planning incentives in three Asian nations is presented, and a multi-national comparative field experiment on family planning incentives is proposed. Experiments include: (1) The Ernakulam vasectomy campaigns, (2) Indian Tea Estates retirement bond incentive program, (3) Taiwan educational bond experiment, and (4) Retirement bond incentive in Malaysia. Each of the four programs rates highly as a field test and as a demonstration of alternative incentive policies. The multi-national experiment recommended would have as its characteristics: (1) the clinic-shed as the experimental unit, (2) a population of five to seven thousand in each clinic-shed, and (3) assignation in each nation of the study five clinic-sheds to control. A discussion of family planning, with implications for incentive experiments in Indonesia, Iran, Korea, the Phillippines, and Thailand, is included. (Author/CK)

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FIELD EXPERIMENTS OF FAMILY PLANNING INCENTIVES

Everett M. Rogers

May, 1972

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FIELD EXPERIMENTS ON FAMILY PLANNING INCENTIVES

by

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This report was prepared while the author was employed for two months during 1971-72 as a consultant to the Population Council, and to the U.S. Agency for International Development (through the American Public Health Association). As is the usual practice for authors to disclaim, any opinions expressed here-in are my own, not my sponsors'.

Critics and skeptics.... often view incentive-payment systems as Machiavellian mixtures of bribery and coercion, particularly if they are to be applied with sophisticated popularization techniques to an unsophisticated, tradition-oriented peasant population.

(Lenni W. Kangas, 1970)

National programs have found that the profit motive is a useful way to support the family planning motive.

(Bernard Berelson, 1969a, p.35)

To date we simply do not know whether incentives will lower a birth rate or rather, how large they would have to be in order to do so.

(Bernard Berelson, 1969b)

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SUMMARY

The purpose of this report is (1) to review four quasi-experiments on family planning incentives in three Asian nations, and (2) to propose a multi-national, comparative field experiment on family planning incentives. Incentives are direct or indirect payments in cash or in kind that are given to an individual, couple, or group, in order to encourage some overt behavioral change.

Past research and program experience indicates that incentives do have an effect in diffusing family planning ideas. Generally, both adopter incentives (which are paid to the individuals who persuade the adopters) increase the "quantity" of changed behaviors (like adoption) but the "quality" of such desions may be relatively low, leading to undesired consequences. For instance, when incentives are paid, discontinuance rates may be higher. These quantity/quality consequences of incentives may be limited to the particular case of the predominant type of incentive payments in the past: Relatively small in size, and for contraception. Will these same aspects characterize the relatively larger, non-birth adopter incentive policies now being offered experimentally in India and Taiwan?

Do adopter incentives coerce individuals into a type of family planning behavior which would not otherwise occur? More often, an adopter incentive acts as a "cue-to-action" in triggering the adoption of a family planning method, when the potential adopter already perceives a need for it and when contraceptive services are already available. Mainly, diffuser incentives are a means by which the communicability or observability of a family planning innovation is increased; so they often lead to increased influence on clients to adopt. In addition, diffuser incentives may (1) provide a type of organizational control to program executives over operational activities, (2) redistribute incomes

from more-advantaged to less-advantaged individuals, and (3) help self-select the most effective family planning field staff.

There are several resistances to incentive policies by family planning program officials; they feel incentives (1) are unethically coercive, (2) may condition patients against paying medical fees, (3) may encourage graft, (4) lead to missreporting of performance, (5) lower the "quality" of contraceptive adoptions, (6) are a budget hazard, and (7) lead to a family planning program becoming overly dependent on incentives. Each of these possible shortcomings of incentive policies were tested on an experimental basis prior to full-scale implementation.

The first family planning incentives were paid in Tamil Nadu State, India, in 1956. These were relatively small adopter and diffuser incentives to reward contraception. This type of incentive policy soon spread throughout India, and then to eight other nations (by 1970). No social science research on the effects of incentives was done until 1968, 12 years after the first incentives were paid. Beginning in 1960, social scientists began proposing incentive policies; most of these were fairly large, non-birth incentives. However, none of these policies were implemented, even on an experimental basis, until the India tea-estates experiment and the Taiwan educational bond study, in 1971. The breakthrough to larger incentive payments occurred as a result of several highly successful vasectomy campaigns in Ernakulam District, Kerala, India, in 1970-71.

We distinguish three eras or generations of research on family planning incentives:

1. Survey research on existing policies, such as Repetto's (1969) investigation of the effects of diffuser incentives for vasectomy in Tamil Nadu State, India.

2. Quasi-experiments on alternative incentive policies, such as the studies underway of the non-birth incentives in India and Taiwan. These inquiries are quasi-experiments, rather than "true" experiments, because (1) there are no true control group(s), and (2) the treatment(s) are notrandomly assigned to respondents. Unfortunately, quasi-experiments cannot remove the effects of extraneous variables. The several quasi-experiments, completed or presently underway, were not planned on a comparative basis so that the results would "add up" to provide a bigger picture about the effects of incentives.
3. Future multi-national experiments on incentives, designed so that a similar approach is followed in each of several countries. The advantages are (1) an educational value to the researchers as they learn from each other in conduct of their studies, (2) extra knowledge about incentives' effects, due to the comparative approach, and (3) generalizability of the experimental results, due to the broader range of socio-cultural conditions represented by the experiments. Further, future studies on incentives should be planned as "true" experiments in which the design includes both a control group and random assignment of treatments to subjects. Greater precision will thus be obtained in the results of such experiments.

Four of the main studies in the present, second generation of research on incentives are described in detail in the present report.

1. The Ernakulam vasectomy campaigns. These enormously successful campaigns have served to demonstrate to program officials in India that relatively higher adopter incentives can help achieve

impressive results. The usual government adopter incentive of 21 rupees for a vasectomy was increased to 114 rupees during the third Ernakulam campaign in July, 1971; the diffuser incentive was increased from 5 rupees to 10 rupees. In addition to the higher incentives, reasons for the success of the Ernakulam campaigns were (1) the District Collector assumed direct responsibility for the campaigns, (2) local community leadership was widely involved in motivating vasectomy adopters, (3) higher quality contraceptive services were provided, and (4) a festival spirit was created. Additionally, the Ernakulam campaigns suggest that family planning incentives may have a greater effect when they are paid "in kind" than when they are paid in cash. Unfortunately, the Ernakulam campaigns were not designed as experiments, and this fact limits greatly what we have been able to learn from the experience.

2. Indian Tea Estates retirement bond incentive program. A non-birth incentive scheme was designed by Dr. Ronald G. Ridker when he was with the U.S. Agency for International Development in India, and this plan (with important modifications) was implemented experimentally on three tea plantations in South India by the United Planters Association of South India (UPASI), starting in July, 1971. Each of the tea estates is a relatively closed system, making it a somewhat ideal experimental site, relatively free from possible contamination. The essential idea of the retirement bond incentive is to reward a tea estates worker for limiting her number of births (and abortions) by providing funds for retirement purposes, which are paid in a lump sum at age 45. A monthly deposit of 5 rupees ($0.67 U.S) is paid

into a bank account for each eligible female worker. Complete forfeiture of these savings, and the interest they earn, is caused by pregnancy after the fourth child; partial forfeiture results from an additional pregnancy after the second or the third child. If no forfeitures occur, a female employee could earn up to a total of 2,000 rupees ($267 U.S.) at retirement. It is too early to draw precise conclusions about the effects of the retirement bond incentive, but the government of India has granted funds to UPASI to extend the incentive scheme to six additional districts in the plantation farming area of South India.

3. Taiwan educational bond experiment. The project was the first non-birth incentive plan launched (in October, 1971) with the implicit permission of a national government. It has served as an international demonstration for non-birth incentive experiments to the hundreds of government officials from other Asian nations that visit Taiwan each year. Although the government family planning program in Taiwan is usually judged to be relatively successful in lowering fertility, a hard-core of non-acceptors remain; they are the special target audience for the non-birth incentive policy. The experiment, sponsored by the Population Council, is underway in one rural township among 727 women. If each of these eligible couples have no more than three children at the end of ten years, they will receive certificates for free secondary schooling for their children (worth about $87.50 U.S.). Families with only two children get twice as much as those with three. The incentive reward was designed because Taiwanese parents see the road to old-age security to be through well educated children. About three-

fourths of the eligible women in the township enrolled in the incentive plan, indicating its general acceptability. There is insufficient evidence to date on the effects of the non-births incentive, except for an indication that current-use of family planning methods increased during the early months of the experiment.

4. Retirement bond incentive in Malaysia. This non-birth incentive policy has been proposed to the national government of Malaysia by Dr. Ronald G. Ridker and Dr. Robert J. Muscat, and was pending a decision in May, 1972. Only married fertile women with less than four children would be eligible for the incentive plan; forfeiture rules call for a modest penalty for the third child, and discharge from the incentive plan for a fourth child. The level of payments and the payoff at retirement are similar to those planned for the India tea estates experiment (which was also proposed by Dr. Ridker). However, unlike the India experiment, the incentive payments would come from the national government of Malaysia, not from private employers like the tea estates in India. Another distinctive aspect of the Malaysia proposal is a small incentive paid semi-annually to each mother when she and her children report to a local health clinic for a check-up (1) to encourage better preventive health, and (2) to provide an annual check on the number of living children for forfeiture purposes. Further, the proposal is nation-wide in scope, although with a three-year pilot study to test its feasibility.

The four programs just described represent some of the most daring innovations in family planning incentive policies yet devised and subjected to empirical evaluation. However, none of the four programs score very highly on

their ability to yield scientifically-precise experimental results about the effects of these new incentive policies. Nevertheless, as quasi-experiments they can provide us with important lessons for the design of the next generation of "true" field experiments on incentives. And each of the four programs rates highly (1) as a field-test, and (2) as a demonstration of alternative incentive policies.

Future experiments on incentives should be characterized by:

1. A benchmark survey before the treatment is applied.
2. Random selection (or assignment) of the treatments (and control) to areas.
3. Typical areas of study.
4. A control group.
5. Precautions against the Hawthorne effect.
6. Replications of each treatment in several areas.
7. Inclusion of multiple treatments.

We recommend a series of comparative, multi-national field experiments on the effects of family planning incentives. Such experiments should have similar research methodologies, as well as test similar (incentive) treatments. We propose to conduct this project in from three to five Asian countries. Within each nation, the clinic-shed should be the experimental unit; each clinic-shed usually contains about five to seven thousand total population. We suggest that in each nation, about five clinic-sheds be randomly assigned to control, and to each of two treatments. One of the treatments should be a non-birth adopter incentive, and the other a contraception adopter incentive; the control is the incentive policy of the regular national family planning program. In each country, the project should ideally be funded by a single research sponsor, so as to encourage country participation and to facilitate a more standardized

research operation.

The report concludes with a discussion of family planning, with implications for incentive experiments in Indonesia, Iran, Korea, the Phillippines, and Thailand.

Chapter 1

INTRODUCTION

The purpose of the present report is (1) to review the nature of four quasi-experiments on family planning incentives in three Asian nations, and (2) to propose a multi-national, comparative field experiment on family planning incentives, to be conducted in several Asian countries.

The following Asian countries were selected on the basis that they represented either (1) the site of a field experiment of family plannine incentives, currently underway or being planned, or (2) a possible candidate for future experiments on incentives, or both.

1. India - site of the tea estates non-birth retirement bond experiment, and the Ernakulam vasectomy campaign (in which relatively higher incentives were paid).

2. Indonesia - possible site for future incentive studies.

3. Iran - site of the Isfahan field experiment on family plannind communication.

4. Korea - possible site for future incentive studies.

5. Malaysia - possible site for a future non-birth incentive experiment, now being planned.

6. Philippines - the location of a present field experiment on family planning field approaches, and a possible future site for incentive experimentation.

7. Taiwan - site of the non-birth educational bond incentive experiment.

8. Thailand - possible site for future incentive experiments.

Each of these eight sites were visited by the author of the present report from December, 1971 to February, 1972.

A main theme of the present report is the potential value of field experiments as a way to test policies about planned change. Certainly no other field of behavioral research has utilized field experiments so extensively to formulate and test alternative public policies for social change as has family planning in Asia. Most of these experiments have dealt with various communication strategies for promoting the widespread adoption of family planning innovations.* In this report, our focus is solely upon one type of strategy, the payment of incentives, although this strategy is necessarily inter-related with many other aspects of family planning programs.

IMPORTANCE OF INCENTIVES

Incentives are direct or indirect payments of cash or in kind that are given to an individual, couple, or group, in order to encourage some overt behavioral change. Such change usually entails the adoption of an innovation, such as a family planning method.** We define an innovation as an idea perceived as new by an individual (Rogers with Shoemaker, 1971, p.19). The specific family planning innovations for which incentives are currently paid in Asia are the IUD, oral contraceptive pills, and male and female sterilization. ***

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*The most famous of these field experiments on family planning communication, and probably the largest, was conducted in Taichung, Taiwan in the early 1960s, and tested several methods of contacting clients to persuade them to adopt the IUD; this experiment was first reported by Berelson and Freedman (1964) and is summarized by Freedman and Takeshita (1969). Numerous field experiments to test various family planning communication strategies were then conducted in India, Thailand, Korea, and Pakistan, and are now undergoing investigation in the Philippines and Iran.

**In a much broader sense, there are a wide range of "incentives" on parents' decisions to have another child, such as the economic contribution of the child's future labor, the prestige of a larger family, etc. We do not include these various birth "incentives" in the scope of our definition; they are currently being investigated by Dr. James Fowett of the East-West Population Institute.

***And much less commonly, condoms and the rhythm method.

Family planning incentives have been paid for 16 years in India, they amount to a large budget item in at least nine countries, and yet we know relatively little about their effects, at least in any careful scientific way. In addition to India, other national governments paying family planning incentives are: Pakistan, Indonesia, Turkey, Taiwan, South Korea, U.A.R., Ghana, and Mauritius.* In several of these nations, the cost of incentives is a major item in the national budget for family planning; for example, about $30 million (U.S.) are designated for incentive payments in India's 1969-1974 Five-Year Plan, representing a major portion of the total family planning budget.

The cost of incentives has been magnified in certain countries like India within the past year, as policy-planners have become convinced of the value of paying relatively higher incentives to adopters. For instance, the month-long Ernakulam District vasectomy campaign in July, 1971 dispersed over $1 million (U.S.) in adopter and diffuser incentives. During 1971-72 this campaign is being replicated in 25 districts in order to reach a target of about 275,000 adopters, who will be paid almost $4 million (U.S.) in incentives (with about half from U.S. AID and the UN Fund for Population Activities, UNFPA).

As Table 1 shows, the total bill for family planning incentives in the 1971-72 year is almost $12 million (U.S.), of which over three-fourths is spent in India. Clearly incentives are an important part of family planning programs today, simply on the basis of the size of the public investment they represent.

But their significance is due to far more than just their financial magnitude. For incentives are a strategy for bringing about large-scale change in human behavior. As such, they cannot be ignored on intellectual grounds. Through experimentation, and the analysis of on-going incentive policies, we can learn more about such behavioral processes as communication, persuasion, and decision-making. So family planning incentive programs, and experiments about incentives, provide a convenient "bathtub" in which significant scientific "boats" can be floated.

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*In addition, the government of Nepal plans to initiate family planning incentives in 1972.

Table 1. Estimated Value of Adopter and Diffuser Incentives Paid by National Family Planning Programs during 1971-72.*

Country Paying Adopter and/or Diffuser Incentives	Estimated Total Value of Incentives Paid during the 1971-72 Budget Year
1. Ghana	$3,000
2. India	$9,750,000
3. Indonesia	$690,000
4. Korea	$89,000
5. Mauritius	$18,000
6. Pakistan	$900,000
7. Taiwan	$10,000
8. Turkey	$33,000
9. United Arab Republic	$104,000
TOTAL	$11,597,000

*These estimates do not include fees to doctors for contraceptive services, which are paid in several countries, because such payments are usually not designed to directly encourage the diffusion and adoption of family planning methods. However, recent experience in Isfahan, Iran indicated that a considerable increase in rates of IUD adoption occurred when doctors were paid a piece-rate "incentive" for insertion. So some fees for providing contraceptive services may also act as diffuser incentives.

To date, most national family planning programs have pursued a voluntary approach consisting mainly of providing contraceptive services to parents for avoiding unwanted births. Pohlman (1972, p. 10), a psychologist specializing in family planning, judges this approach as "too soft", just as he feels the strategy of force (such as mandatory sterilization after two children) is "too hard." Instead he advocates a middle path involving financial incentives for actions that reduce birthrates: "Sooner or later, perhaps decades hence, I believe our world will be forced to use financial incentives for population control, to 'rig' the economic systems of rewards and penalties toward small families."

TYPES OF INCENTIVES

A variety of types of incentives are paid by family planning programs, and many other types are possible. Here we list several different criteria by which incentives can be classified. This nomenclature is used in the remainder of the present report.

1. Adopter versus diffuser incentives. Incentives can be paid either directly to an adopter, or to another individual to encourage him to persuade an adopter.

2. Individual versus group incentives. Payments can be made to individual adopters or field workers, or to groups to which they belong. In India the panchayat (village council) often receives an incentive of five rupees for each sterilization performed in the village. Kangas (1970) points out that: "All of the incentives used thus far in the vast majority of programs are given to individuals--acceptors or providers." However, a number of programs have policies that provide a type of group incentive, although they are not defined as such. For instance, in Indonesia the national family planning agency (the BKKBN) awards a group diffuser incentive of 500 rupiah ($1.25 U.S.) for each adoption of IUD or pills, to local clinics. Two hundred rupiah out of this fee are awarded to the field worker or other individual who motivated the adopter. Thus group incentives can encourage cooperation of the clinic staff with the field staff in securing adopters.

3. Positive versus negative incentives. Although all these incentives are positive (in that they reward a desired behavior change), it is also possible to penalize an individual by imposing an unwanted penalty or by withdrawing some desiderata for not adopting an innovation. For instance, some Asian governments, and some industries, use a family planning disincentive: Any employee who gives birth to a fourth (or further) child is not eligible to receive maternity leave and must pay all hospital and delivery costs, which would otherwise be paid by the employer. The government of Ghana decided in 1969 to grant maternity leaves and to pay child allowances and traveling expenses only for an employee's first three children. Similar policies are followed in Indonesia's state-owned textile factories, and have been proposed as a national policy by President Suharto for all government employees.

4. Monetary versus nonmonetary incentives. Although we have described only financial payments, incentives may also take the form of some commodity or object desired by the recipient. For example, in Andhra Pradesh State a sari with red triangles (the symbol of family planning in India) was awarded to each tubectomy adopter in 1969, and each vasectomy adopter received a similarly decorated lungi (male garment). In some countries, an "in kind" incentive of food is given for adopting a family planning method. In Singapore a higher priority for obtaining scarce housing is provided to families with fewer children.

5. Immediate versus delayed incentives. Most of these incentives are immediate, in that payment is made at the time of adoption, but delayed incentives may have advantages under certain conditions. In the United Arab Republic, the government pays an adopter incentive for an IUD insertion at the time of clinic follow-up with the client, when it can be ascertained that the device is still in place; hence, discontinuance is less likely. Certain incentives can be awarded only on a delayed basis; examples are provision of cost-free educational enrollment for the children of a couple who adopt a contraceptive. Similarly, a retirement bond is offered to the female workers on tea plantations in South India

for nonpregnancy, in order partially to compensate them for the loss of old-age security provided by children (Ridker, 1969 and 1971).

6. Graduated versus nongraduated incentives. It might be argued that an incentive of 4 dollars (U.S.) is not equal in value to all adopters; a landless agricultural laborer with a monthly income of 6 dollars will perceive the incentive quite differently from someone with an income of 50 dollars. Further, if the purpose of family planning incentives is to motivate adoption, there is no reason why the payments need be identical for each adopter or for each field worker. To illustrate a graduated diffuser incentive: In Taiwan, family planning field workers receive a higher incentive payment for motivating adoption among women under 30 years of age than for those over 30, and they receive ten times as much credit for an IUD adoption as for a pill adoption. An illustration of a graduated adopter incentive is provided by one Indian factory that offers acceptors 75 rupees for sterilization after three children, and 25 rupees after five or more children (International Planned Parenthood Federation, No date, p.11). This sliding system of payments is designed to reward non-births rather than simply the adoption of a contraceptive.

7. Contraception versus non-birth incentives. The purpose of securing the adoption of contraceptives is to prevent births. Incentives can be classified as to whether they encourage the prevention of births directly, or only indirectly by rewarding adoption of contraception. The Indian retirement bond, mentioned previously, is a non-birth incentive in that the bond is withheld if the tea estates worker gives birth to a fifth child. Almost all the incentives currently used in less-developed countries are contraception incentives, although non-birth incentives would be more demographically effective.

Further classification of incentives could, of course be postulated, such as whether the payment is made by a government or a private source, whether the incentive is large or small, and so on. However, the main purpose of the present seven-fold taxonomy is to illustrate some important criteria by which incentives

can be classified so that these attributes can be combined to form an incentive policy that maximizes certain desired aspects, the so-called "optimum incentive."

Most of the incentive policies followed today by national family planning programs are a particular combination of the seven classifications just discussed. The nations currently offering family planning incentives usually follow a policy (1) of paying both adopter and diffuser incentives, (2) to individuals, not groups, (3) that are positive, rather than negative, (4) of a monetary nature, (5) immediately, (6) of a nongraduated value, (7) for contraception (Table 2). So only a rather narrow range of the many possible combinations of our seven classifications have been implemented as national policies. Several unique combinations, especially of non-birth incentive policies,* are currently undergoing experimentation in Asia. But if one formed a matrix representing all of the possible combinations of the seven incentive classifications, it would be apparent that most of these possibilities have neither been implemented as policies, nor tested in field experiments.

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*Most of these (experimental) non-birth incentives are to individuals (or parents), negative, monetary, delayed, and graduated.

Table 2. Classification of Family Planning Incentive Policies by Country.

Country**	Status of Incentive Policy	Seven-Fold Classification of Incentive Policies: Adopter vs. Diffuser	Individual vs. Group*	Positive vs. Negative	Monetary vs. Nonmonetary	Immediate vs. Delayed	Graduated vs. Nongraduated*	Contraception vs. Non-Birth
India	(a) National policy	Adopter and Diffuser	Individual	Positive	Monetary	Immediate	Nongraduated	Contraceptive
			"	"	"	"	"	"
	(b) Ernakulam Experiment	Adopter and Diffuser	"	"	Both	"	"	"
			"	"	Monetary	"	"	"
	(c) Tea estates experiment	Adopter	"	Negative	"	Delayed	Graduated	Non-Birth
Indonesia	National policy	Diffuser	"	Positive	"	Immediate***	Nongraduated	Contraception
Korea	National policy	Adopter and Diffuser	"	"	"	"	"	"
			"	"	"	"	"	"
Mauritius	National policy	Diffuser	"	"	"	Delayed	"	"
Pakistan	Becoming a National policy****	Adopter and Diffuser	"	"	"	Immediate	"	"
			Group	"	"	Delayed	Graduated	Non-Birth
Taiwan	(a) National policy	Diffuser	Individual	"	"	Immediate	"	Contraception
	(b) Educational bond experiment	Adopter	"	Negative	Nonmonetary	Delayed	"	Non-Birth
Malaysia	Proposed experiment	Adopter	"	"	Monetary	"	"	"

*That is, graduated across individuals; in almost every nation there are different incentives for different family planning methods.

**We could not obtain sufficient data to classify the incentive policies of Ghana, Turkey, and the U.A.R.

***Supposedly, but in actuality most incentive payments are delayed inadvertantly.

****Having been launched in Sialkot District in 1970 (Ahmad, 1971).

ROLE OF INCENTIVES IN DIFFUSING INNOVATIONS

Quantity and Quality Effects of Incentives

What is the role of incentives in diffusing family planning methods?

First, there is considerable evidence both (1) from scientific investigations, and (2) from the experience of family planning programs, that incentives do have an effect in diffusing family planning ideas. While there is occasional controversy about the ethics of paying incentives, no one claims they are ineffective. There is no evidence that incentives do not make a difference.

After a review of various types of evidence available, Rogers (1971a) concluded that family planning incentives have the following effects.

1. Adopter incentives increase the rate of adoption of family planning innovations.

2. Adopter incentives lead to adoption of a family planning innovation by different individuals than would otherwise adopt. Elites are usually the first to adopt a new idea (Rogers with Shoemaker, 1971), but incentives seem to encourage the diffusion process to start near the bottom of the socio-economic structure (rather than at the top).* The relatively poorest, rather than the richest, members of a system adopt first, when an incentive is paid.

3. Although adopter incentives increase the quantity of adoptions of a family planning innovation, the quality of such decisions to adopt may be relatively low, leading to limitations in the intended consequences of adoption. Lower "quality" of adoption may be indicated in two ways: (1) continuation rates (quality-over-time) may be lower, and (2) the desired consequences of adoption

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*This may be a significant effect of incentives in terms of program costs, as it is estimated in Asia that it costs roughly twice as much to get an illiterate adopter as a literate adopter (Keeny, 1972). Likewise, when no incentives are paid, it may cost twice as much to get a poor adopter as a rich one, etc. But the payment of incentives seems to reverse this process, so that poor and illiterate adopters are especially attracted.

may not occur, because some of those adopting a family planning method may not need the contraceptive to prevent births.

4. Diffuser incentives increase the rate of adoption of a family planning innovation by encouraging interpersonal communication about the innovation with peers.

5. Although diffuser incentives increase the rate of adoption of a family planning innovation, the quality of the decision to adopt may be relatively low, leading to undesired consequences.

These generalizations by Rogers (1971a) are based on research on adopter and diffuser incentive payments that are relatively small in size, immediate, and for contraception; these were about the only types of incentives paid until 1971, so the effects of other types of incentive policies could not be studied. Future inquiry will tell whether these some generalizations will hold for relatively larger, deferred, non-birth adopter incentives, such as those being offered in the India tea estates retirement bond experiment and the Taiwan educational bond project (Table 2).

Adopter Incentives

Why do incentives speed up the rates of diffusion and adoption? Because payment of an adopter incentive creates a higher degree of relative advantage* for the family planning method in the mind of the potential adopter. In addition to the degree of relative advantage that the innovation itself holds for the individual, the incentive heightens this perceived relative advantage in a supplemental way.

Often an adopter incentive acts as a "cue-to-action" in triggering the adoption of a family planning method (Figure 1). Hochbaum's (1958) model for health behavior, adapted to the case of family planning behavior, posits two

*Defined as the degree to which an individual perceives a new idea to be superior to the idea that it replaces (Rogers with Shoemaker, 1971).

prior conditions for adoption: (1) a perceived need for contraception, and (2) the accessibility of family planning services, through clinics, doctors, suppliers, etc. But these two factors are not enough; millions of fertile Asian couples have favorable attitudes toward family planning methods, and these innovations are easily accessible, yet they do not adopt. They lack a cue-to-action, an event that crystallizes their attitudes into action (Rosenstock, 1966). For some individuals, adopter incentives can provide such a cue-to-action. But seldom do adopter incentives have much to do with creating a need for family planning, unless it might be the realtively large, non-births incentives now undergoing experimentation in India and Taiwan. And adopter incentives have little to do with the accessibility of contraceptive services.

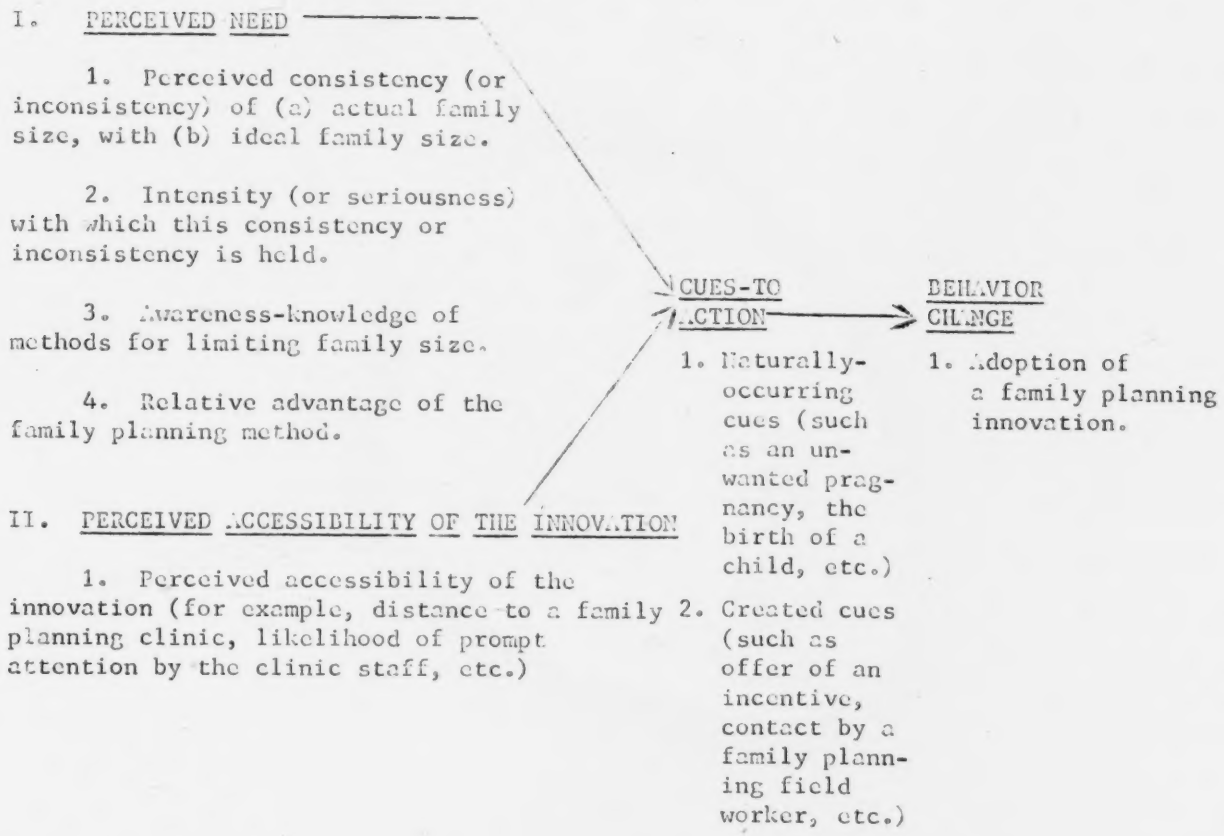
I. PERCEIVED NEED
1. Perceived consistency (or inconsistency) of (a) actual family size, with (b) ideal family size.
2. Intensity (or seriousness) with which this consistency or inconsistency is held.
3. Awareness-knowledge of methods for limiting family size.
4. Relative advantage of the family planning method.
II. PERCEIVED ACCESSIBILITY OF THE INNOVATION
1. Perceived accessibility of the innovation (for example, distance to a family planning clinic, likelihood of prompt attention by the clinic staff, etc.)
CUES-TO ACTION
1. Naturally-occurring cues (such as an unwanted pregnancy, the birth of a child, etc.)
2. Created cues (such as offer of an incentive, contact by a family planning field worker, etc.)
BEHAVIOR CHANGE
1. Adoption of a family planning innovation.

Figure 1. The Hochbaum Model of Health Behavior Applied to Family Planning.

However, diffuser incentives, paid to the individual or group who motivate an individual to adopt, may serve not only in instigating a cue-to-action (through the persuasive efforts of the incentive-motivated canvasser), but they may, at least in some instances, increase the individual's perceptions of contraceptive accessibility. For instance, when a canvasser tells a potential adopter that he recently adopted a family planning method at a nearby clinic, the perceived accessibility of such services are increased.

Diffuser Incentives

Mainly, diffuser incentives are a means by which the communicability or observability of a family planning innovation is increased. Such incentives are a way to boost interpersonal communication about family planning ideas. And the source (or channel) of such interpersonal influence is especially valuable because the canvassers are individuals very similar to the potential adopters they are persuading. Studies suggest that this source-receiver homophily provides a high degree of safety credibility that other possible sources (like family planning doctors or other professionals) could never attain in the eyes of the receiver.*

A promoter of an innovation who has previously adopted that idea, who is similar to the potential adopter in socio-economic status, life style, and beliefs, and who is a trusted friend, is the greatest motivating force for adoption of family planning ideas (Rogers, 1971a). Vasectomy canvassers in India, like the individuals they persuaded to adopt, were poor, illiterate, low-caste, and employed as agricultural laborers or as urban manual workers (Repetto, 1969). All of the canvassers interviewed by Repetto (1969) in Tamil

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*Survey data bearing on this point are summarized by Rogers (1972) and Rogers and Bhomik (1971); an experimental test of this proposition for family planning sources in Indian villages is Parris (1971). She found a village elder was perceived as more credible, and in fact was more effective in persuading a TV audience of villagers about family planning, than a medical doctor.

Nadu State had been vasectomized. A crucial point in the adopter's innovation-decision process occurred when the canvasser showed his operation scar, which was visible evidence to the adopter that the canvasser knew what he was talking about. Such credibility is a highly valuable commodity in the persuasive process; and it can be obtained by diffuser incentives to "near-peers."

Incentives, especially diffuser incentives, may have an additional role in a family planning program: They can provide a type of organizational control to top executives over operational activities. For instance, in Indonesia the government family planning agency (the BKKBN) only sets policies and dispurses funds, but does not actually conduct family planning activities, which are carried out by such ministries as health, information, community development, etc.* So the BKKBN can only indirectly influence operational activities; it can not directly order a particular ministry to carry out some procedure. But through the payment of diffuser incentives, and by specifying the criteria under which such incentives will be paid, the BKKBN can exercise considerable influences on field operations. For example, the BKKBN provides an incentive for IUD and pill adoptions, but not for condom; thus promotional efforts for certain contraceptives are encouraged at the expense of others.

The relative size of incentive payments can be changed so as to shift the intensity of promotional efforts by field staff from one family planning method to another. This use of incentives to actualize a change in the diffusion strategies of a family planning agency was recently illustrated in Korea.**

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*The organizational arrangements of national family planning bodies are generally similar in Malaysia, the Philippines, and several other countries.

**And in Indonesia where the BKKBN announced that after April 1, 1972, the diffuser incentive for pills would be reduced from 200 to 100 rupiah per adopter, while the incentive for IUD would remain at 200 rupiah ($0.50 U.S.)

The diffuser incentives for field workers were shifted as follows:

Family Planning Method	Paid in 1971	Paid in 1972
IUD	50 Won ($0.13 U.S.)	100 Won ($0.27 U.S.)
Vasectomy	100 Won ($0.27 U.S.)	300 Won ($0.81 U.S.)

As a result of this change in diffuser incentive policies, we would expect greater relative emphasis by field workers in promoting vasectomy, and less on the IUD.

Incentives are usually regarded by family planning officials as a budget hazard, because they are paid on a piece-rate basis, and annual rates of adoption are often unpredictable. For instance, if the number of adopters in a given year is unexpectedly high (as in Korea for IUD in 1964 when the original goal of 20,000 was much lower than the achievement of 107,444), there is insufficient budget to pay the incentives. If performance is unexpectedly low, the result can also be disastrous because the annual budget is underspent, which invites a budget cut the following year.

In Korea, a system of incentives to adopters, field workers, and private doctors, combined with rigid annual targets for each township for each family planning method, act to closely regulate the annual number of adoptions. Under-achievement of targets is reprimanded by superiors. If a township or county exceed their target, no incentives are paid for the higher performance (over the target). Here are the number of adopters per month in a rural county in Korea in 1971:

	September	October	November	December	Annual Total Achieved	Annual Assigned Target
IUD	145	96	2	0	1,024	994
Vasectomy	16	13	3	2	75	75

Obviously, it appears that as the targets were reached (and surpassed in the case of IUD) in the last months of the year (so that no incentives could be paid), promotional efforts were cut back. Thus, the net effect is a "floor" (due to pressures to fulfill the official targets) and a "ceiling" on performance (to prevent overspending the incentive budget). Again we see how incentive policies can provide a type of organizational control to program officials, and in this case how such control was utilized to prevent incentives payments from constituting a budget hazard.

Diffuser incentives have been used widely for years in business as a reward system for salesmen, and hence as a means of organizational control. The following advantages are claimed for such commission plans: (1) they maximize sales effort by directly rewarding its success, (2) selling expenses are roughly proportional to sales volume, (3) flexible direction of the salesmen's efforts is provided if different commissions are offered on different products, and (4) ambitious, self-motivated individuals are attracted to the salesman position (Kotler, 1967, pp. 516-529). However, company control over salesmen may be less with a commission system than with a straight salary; for example, it may be difficult to encourage commissioned salesmen to engage in non-sales activities like customer follow-up, sales reporting, etc. There has been no attempt to date, to apply the lessons learned from analyses of salesmen's incentives to the diffusion of family planning innovations.

The payment of incentives, especially adopter incentives, has yet another function, although it is one that is of minor importance, and one not widely recognized: A welfare function by <u>redistributing incomes</u>. Most adopter incentives, of course, go to relatively poor individuals. The funds for incentives <u>come</u> from relatively higher income families in the form of taxes, or else from other, more developed countries. So incentives are a means by which resources are transferred from the more-advantaged to the relatively less-advantaged.

This transfer function is clearly recognized in the Malaysia proposal for a non-birth incentive, and is one of the arguments used to justify it (at least covertly). The incentives will be paid mainly to lower-income rural people of Malay ethnicity; the funds will be provided heavily by tax payments from the higher-income urban citizens, many of Chinese ethnicity.

Finally, one of the often overlooked functions of diffuser incentives is that they help self-select the most effective field staff. Many Asian nations have established field worker selection criteria for age, education, residence, and marital status, and these characteristics may contribute to high performance in motivating adopters. Other social-psychological variables like personal commitment to the concept of family planning, extrovertism, etc., may be more important in explaining field worker performance. However, these variables are difficult to measure, so as to provide a basis for field worker selection.

The beauty of an incentive-reward system is that it encourages potentially successful field workers to "select themselves". Individuals who seek the position feel they can excel in a system where their income depends mostly on how many adopters per month they can obtain. They have the "salesman's personality". And this selective attraction of the incentive system is the simplest and most effective selection procedure that can be devised. It maximizes results.

In summary, we have argued that adopter incentives, at least those for contraception, mainly act (1) to create a higher degree of perceived relative advantage for family planning innovations, and (2) to provide a cue-to-action in triggering the adoption of a family planning idea. Diffuser incentives mainly increase the communicability or observability of family planning innovations; in addition, diffuser incentives may (1) provide a type of organizational control to program executives over operational activities, (2) redistribute incomes, and (3) help self-select the most effective field staff.

Criticisms of Incentives

What are the main sources of resistance to the payment of family planning incentives, in the minds of program officials?

1. Many government officials feel that incentives, especially adopter incentives, are unethical in that they are coercive, or at least not entirely voluntaristic. Some leaders fear a negative public reaction to the payment of incentives.

2. Some leaders, especially family planning officials with medical backgrounds, are dubious about incentives because they may condition patients against paying medical fees. Doctors are accustomed to self-motivated clients who actively seek health services. When a sick child is crying, parents are motivated to visit an MCH clinic. A similar cue-to-action is simply not present in the case of family planning, but this fact is often overlooked. Medical doctors may fear that providing free contraceptive services, or worse, offering adopter incentives, may spoil their private medical practice because their patients will become accustomed to not paying fees.

3. Public officials also worry about the possible graft that may accompany incentive payments. Because incentives are most effective if paid immediately after adoption, and often in the form of cash, usual government accounting safeguards cannot be observed. Publicity accorded to a few cases of detected cheating on incentives act to confirm the expected fears of graft. Of course, there are important problems with the proper administration and control of incentive funds, but such difficulties are often exaggerated. And most can be overcome, or minimized, with properly-designed control systems.

4. Diffuser incentives are also an incentive to cheat, and unless there are effective controls to prevent such cheating, serious missreporting of performance can occur. Such incorrect feedback about the number of adopters achieved

by a program, could lead to poor quality decisions by policy-makers, due to such bogus information. The actual occurance of missreporting or other forms of cheating is unknown in most countries, and so the effect of incentives in encouraging cheating cannot be assessed.

5. Incentives often lead to lower "quality" adoptions, such as is indicated by higher rates of discontinuance, as we pointed out previously in this report. Some officials thus feel that incentives provide the "wrong kind of motivation" to adopters, or that they lead to some officially-unwanted results.

6. Incentives are a budget hazard to family planning officials, as we showed previously. Most national budgets are developed at least a year in advance. If the annual number of adopters is overestimated, piece-rate incentives create a budget surplus at the end of the year, leading to a reduced budget the following year. If the expected rate of adoption is under-estimated, incentive payments bankrupt the annual family planning budget.

7. It is possible that a family planning program can become so overdependent on incentives that other motivational and informational aspects may not receive their just due. In fact, incentives probably have their greatest effect when all other aspects of the program are also provided in an adequate manner.

There is good reason for each of these seven criticisms of family planning incentives, because most present incentive policies display some or all of these deficiencies. But it is also important to remember that each of them can be overcome. Most would have been avoided in the first place, if national family planning programs had tried their incentive policies on an experimental basis prior to implementation on a national scale. Unfortunately in the past such experimentation has been a missing ingredient in the formation of incentive policies. It is sorely needed in the future.

BACKGROUND ON FAMILY PLANNING INCENTIVES

Pragmatic Beginnings of Incentive Policies

Family planning programs in Asia began with strictly a voluntary approach to fertile couples: Information about family planning was made available, as were contraceptive services, usually through government health clinics. However, the number of families who adopted was often discouraging, and in the mid-1960s many national officials began to turn to incentives in hopes they would speed the lagging rate of diffusion.

The first family planning incentives were paid by the state government of Madras (now Tamil Nadu) in India in 1956. Although incentive policies were soon instituted throughout India (and in most other countries with large-scale, national family planning programs), and represented very large budget expenditures, there was no behavioral science research on their effect for about 10 years. During this decade, however, numerous articles* appeared in which alternative family planning incentive policies were proposed; abstract economic justifications for these schemes were advance without empirical support.

Crucial policy decisions, such as how large the incentive payments should be; when, how, and to whom they should be paid; and the form they should best take; were made on the basis of intuition and conjecture (and occasionally, experience). Little thought was given in the early days of family planning incentives to the use of experimental studies to empirically derive alternative incentive policies, or even to evaluation research on existing policies.

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*The first such article by Enke (1960), was followed by about 20 others in the next 10 years.

So incentive policies were initiated by family planning officials as a pragmatic means of speeding the diffusion and adoption of contraceptive ideas. These policies were not based directly (1) on prior experience with incentives in business selling or in agriculture,* or (2) on social science understanding of human behavior change. The first role played by social scientists, chiefly economists (some of whom were demographers), was to postulate alternative incentive policies, but not to provide empirical support for them.

Non-Birth Incentives

The first incentives paid, such as those in Tamil Nadu State, were (1) immediate, rather than deferred, (2) for contraception, rather than for non-birth, (3) relatively small in size (usually less than about $3.00 U.S.), and (4) to the individual "adopter" (or his family) who seeks to avoid pregnancy.

Non-birth incentives are more likely to guarantee continued adoption and officially-intended consequences, than are contraception incentives. Yet the non-birth incentive policies had to wait 11 years before their effects were even tested experimentally. The first proposal for a non-birth policy was made in 1960, and various governments, such as the government of India, were repeatedly approached by the proponents of such policies; but the first non-birth incentive policy was not initiated (on an experimental basis) until June, 1971. Further, this first program was conducted by a private business organization, the United Planters Association of South India (UPASI), although (1) with certain funds provided by the U.S. Agency for International Development, and (2) with the general approval of the government of India. The 11 years of unsuccessful efforts by academicians to "sell" a non-birth incentive policy to an Asian government illustrate the con-

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*While there is a long history of incentive payments in commercial selling and in agriculture, none of these incentive policies were subjected to social scientific research in order to ascertain their effects, and thus to aid the designing of more effective and efficient family planning incentive policies.

siderable reluctance of governments toward the payment of non-birth policies, especially those with relatively higher payments.*

However, after the UPASI non-birth scheme was underway for about six months, the government of India sanctioned 1,100,000 rupees (about $150,000 U.S.) to extend the policy to all plantation employees in six additional districts in South India.

Similarly, and in a somewhat parallel sense, a non-birth incentive policy was instituted on an experimental basis in Taiwan, with funds provided by the Population Council, and with the knowledge, but not full official approval, of the government of Taiwan.

News of the South India and Taiwan experiments lead to official interest in non-birth policies in Malaysia, Thailand, and the Philippines, where experiments are being currently proposed and being considered.

Larger Incentive Payments

Non-birth incentive payments are usually much larger than those for contraception. Relatively larger incentives can, of course, be paid for contraceptive adoption, but government policy-makers have generally been very conservative in setting the levels of incentive payments.** As one Asian official told the present author: "We can always raise the level of incentives at some later time if they are too small to have the desired effects, but it is very difficult to lower them." None of the nine countries paying incentives offer adopter incentives of more than about $4.50 U.S.; in fact, adopter incentives of less than $3.00 U.S., and diffuser incentives of less than $1.33 U.S., are more common.

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*And, less directly, the general resistance of government family planning officials to novel incentive policies of all kinds.

**And in acknowledging (1) that incentives play an important role in a family planning program, and (2) that incentive policies should be continued. For example, the Central Family Planning Council in India in 1968 recommended that "as adequate family planning services become increasingly available... and as there is more and more public response, the existing compensation amounts [incentives] should be gradually reduced and ultimately withdrawn" (Krishnakumar, 1971, p. 75).

However, a breakthrough in government reluctance toward relatively higher incentive payments occurred in India in 1970-71 as the result of a particularly successful vasectomy campaign in Ernakulam District, Kerala State. An enthusiastic young government administrator, S. Krishnakumar, the District Collector in Ernakulam District, launched three successive vasectomy campaigns:

1. A one-day pilot campaign in three villages at Kalamassery in Auguest, 1970, in which the usual government incentive of 21 rupees ($2.80 U.S.) was supplemented by an additional 60 rupees, donated by a local business concern.* The surprising response was a total of 746 vasectomies in the one-day campaign.

2. A 31-day district-wide campaign in November-December, 1970, in which 86 rupees ($11.47 U.S.) in cash and in kind were paid to adopters, and 5 rupees (rather than the usual 2 rupees from the government) were paid as a diffuser incentive. Over 15,000 sterilizations were performed.

3. A month-long campaign in July, 1971, in which 114 rupees ($15.20 U.S.) in cash and in kind were paid to adopters, and 10 rupees to diffusers. Over 63,000 sterilizations were performed with about 60 percent of these to individuals coming from outside the district (who had to travel an average distance of over 40 miles to obtain their operations).

Of course, these fantastic results were obtained due to many other factors than just the higher incentives. But nevertheless, the government of India was convinced of the importance of paying increased incentives, and has since authorized 25 other districts to pay 80 to 100 rupees ($10.67 to $13.33 U.S.) as adopter incentives, with about two thirds of this increase over the usual 21 rupees coming from the U.S. Agency for International Development and the UN Fund for Population Activities. Significantly, the central government family planning officials in

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*Krishnakumar was told by his family planning officials in Ernakulam District that he should offer an adopter incentive of about 100 rupees if he wanted such incentives to have a major effect in persuading individuals to adopt vasectomy. The later experience of the Ernakulam campaigns shows their estimate was approximately correct.

Delhi did not authorize, nor were they even aware, that a higher incentive was paid in the August, 1970, and in the November-December, 1970 campaigns in Ernakulam. But once the successes of these two campaigns become known in Delhi, the central government was convinced of the value of higher incentives, and, in fact, they provided an additional incentive of 20 rupees per adopter for the third (July, 1971) campaign.

So the Erankulam vasectomy campaigns, in addition to the other understandings they provide, played a key role in demonstrating the value of higher incentives.*

Table 3 summarizes the main highlights in the history of family planning incentives, and suggests the three generations of research on incentives, to be described shortly.

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*The payment of higher family planning incentives offers an empirical opportunity to test a famous social-psychological theory. Festinger's (1957) dissonance theory predicts that large rewards, material benefits, etc., can change an individual's behavior, but not necessarily his attitude. Further, the stronger such rewards or punishments (that is, the larger the family planning incentive paid), the more behavioral change (adoption of family planning methods).

Table 3. A Brief History of Family Planning Incentives in Asia.

Date	Historical Event
1956	First family planning incentives paid in Tamil Nadu State, India.
1960	Beginning of theoretical writing by social scientists about various types of family planning incentives policies, by Enke (1960).
1968	First generation of scientific research on family planning incentives begins; examples of such analyses of the effects of incentives policies are Repetto (1969) and Srinivasan and Kachirayan (1968).
1970	Nine countries now pay family planning incentives.
1970-71	First payment of relatively higher incentives, in Ernakulam District vasectomy campaign in India.
1971	Beginning of second generation of scientific research on family planning incentive policies, featuring quasi-experiments on births-prevented incentives; examples are the tea estates retirement bond experiment in Taiwan.
?	Beginning of the third generation of scientific research on family planning policies, featuring multi-national, comparative experiments.

THREE GENERATIONS OF RESEARCH ON FAMILY PLANNING INCENTIVES

As Table 3 briefly depicts, we distinguish three eras or generations of research on family planning incentives.

Generation I: Survey Research on Existing Policies

The first studies were mostly post hoc evaluations of incentive programs, utilizing survey research methods. Typical of the several studies in this first generation of incentives research was the Repetto (1969) investigation of incentive-motivated vasectomy canvassers in India. Much can be learned about designing improved policy alternatives from survey research on exemplary programs, as the Repetto study illustrates. Unfortunately, however, survey research is necessarily bound to studying the relative effectiveness of existing policy, policy that is already implemented on a large scale. So survey research is severely limited in its ability to break outside the bounds of current practice.

Even in the first generation of research on incentives, their efficiency as well as their effectiveness was studied. Effectiveness is the degree to which a strategy, policy, program, or message has an effect on the behavior of the audience members. For instance, the effectiveness of a contraception incentive is usually measured by the number of individuals who adopt the contraceptive.

Efficiency is the relative cost per unit of the effects that are secured. Thus we often speak of cost-effectiveness as a synonym for efficiency. An example of an efficiency measure for an incentive policy is the cost of obtaining the average contraceptive adoption (when the incentive is paid). For instance, Repetto (1969) showed the greater efficiency of the Tamil Nadu vasectomy program because diffuser incentives were paid, which lowered the cost per adopter and per birth-prevented. The benefits to the government of India of this diffuser incentive amounted to U.S. $70 million in terms of labor and consumption; this estimate was based on 75,000 additional vasectomy adoptions per year (due to the diffuser incentive), resulting in

900,000 expected births-prevented in the following five years. It was argued that the cost per birth-prevented due to the vasectomy diffuser incentive was much less than an alternative, non-incentive approach.

Another study of the added efficiency due to paying incentives is Dr. Gordon Perkin's analysis in Chana (Rogers, 1971a). The cost per adopter was reduced from $9.85 (U.S.) to $4.47 when an adopter and a diffuser incentive were paid.

Generation II: Quasi-Experiments on Alternative Policies

Exploration of really innovative policies was facilitated in the second generation of incentives research by the use of quasi-experimental designs. In such investigations, a new incentive policy is tried on a test basis, and its results are usually compared with previous practice. Examples of such second generation quasi-experiments are:

1. The Tata factory workers experiment in India, which tested the effect of a relatively large incentive of 200 rupees on the adoption of sterilization (Research and Marketing Services, 1970). A comparison was made of rates of adoption in the Tata factories, with comparable factories not paying the large incentive.

2. The South India teas estates experiment which tests the effects of a non-birth incentive, paid as a retirement bond to tea-pickers (Ridker, 1969 and 1971). This study was mentioned previously and is due to be described in detail in Chapter 3 of the present report.

3. The Taiwan educational bond study which evaluates the consequences of a non-birth incentive (Finnigan and Sun, 1972), mentioned previously and due to be analyzed further in Chapter 4 of the present report.

4. A quasi-experiment in Indonesia on the effects of initiating a smaller, and a relatively larger, diffuser incentive for IUD and pills (Rogers, 1971b). The effects of the incentives were estimated by comparing rates of adoption for the Province of Bali before, and after, the incentive policy was initiated.

These four studies are all quasi-experiments, rather than "true" experiments, in that (1) there are no true control group(s) in the research design, and (2) the treatment(s) are not randomly assigned to respondents (Campbell, 1968; Campbell and Stanley, 1966, p.34). Both of these methodological shortcomings of the quasi-experiment are due to the lack of control by the investigators over the treatment(s), because a program official decides which subjects will receive the treatment(s) on the basis of administrative convenience. When randomized assignment and true control group(s) are not present, as in a quasi-experiment, the effect of extraneous variables on the dependent variable cannot be removed. We see illustrations of this important point in the quasi-experiments conducted during the second generation of research on incentives.

In the India factory workers study the researchers could not manipulate the treatments (incentives), and there were no true control groups because the workers and the factories were not randomly assigned to treatment and control groups. Hence, the degree to which the research design removes the effect of extraneous variables is low.

Another quasi-experiment is the non-birth incentive study now underway in South India on three tea estates with 493 workers (Ridker, 1969 and 1971). Although this investigation advances the understanding of incentive effects, it was impossible to select randomly the three companies involved, and so one cannot be certain that all extraneous variables are removed. A comparison of the fertility rates of the tea-pickers receiving the incentives with the fertility rates of employees of other companies will not tell us the effect of the incentives alone. The experimental companies may employ workers who are older, more educated, or different in other ways from the "control" workers, and these variables (as well as the incentives) will affect their birth rates.* In fact, the three plantations were

*The first step in determining the seriousness of these non-experimental variables in affecting the treatment effects would obviously be to assess the typicality of the tea workers on the three plantations (as compared to employees on the other UPASI plantations).

selected on a non-random basis because they were willing to try out the incentive policy, and because they were adjacent to the UPMSI office, where the project was headquartered.

In the Indonesian quasi-experiment, a 174 per cent increase in rates of adoption of IUD and pills resulted from the smaller incentive (in the Province of Bali), and a further 62 percent increase resulted from the larger incentive (Figure 2). But during the 20 month period of study (January, 1970 to August, 1971), the rate of adoption of IUD and pills was increasing somewhat due to other facotrs than incentives, and this residual is unfortunately included along with the incentives' effects*. Rogers (1971b) estimated this residual to be only 5 to 10 percent of the increased rates of adoption, on the basis of trends in adoption in other Indonesian provinces (where the smaller and larger incentives were not initiated at the same time as in Bali). Yet these "quasi-control groups" may not be fully equivalent to the Province of Bali; for instance, Balinese are mostly Hindus, while the other provinces are predominately Islamic, and this religious factor may affect the reponse to family planning incentives. Furthermore, Balinese women work at outside the-home employment, and this is a pressure for smaller families.

The main limitation of quasi-experiments, in comparison with "true" experiments, is the difficulty in drawing solid conclusions about the treatment effects. Further, the quasi-experiment usually does not break as far outside of the bounds of current practice. The treatments are often only a minor modification of existing policy, although they need not necessarily be. True experiments more often offer a way to test really new approaches to incentive policies.

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*In fact, the effects of the diffuser incentives were further muddied by January, 1972, when there were 2,300 adopters per month (a further increase of 23 percent), partly due to the addition of 106 full-time field workers, as well as to the effects of various other aspects of the family planning program.

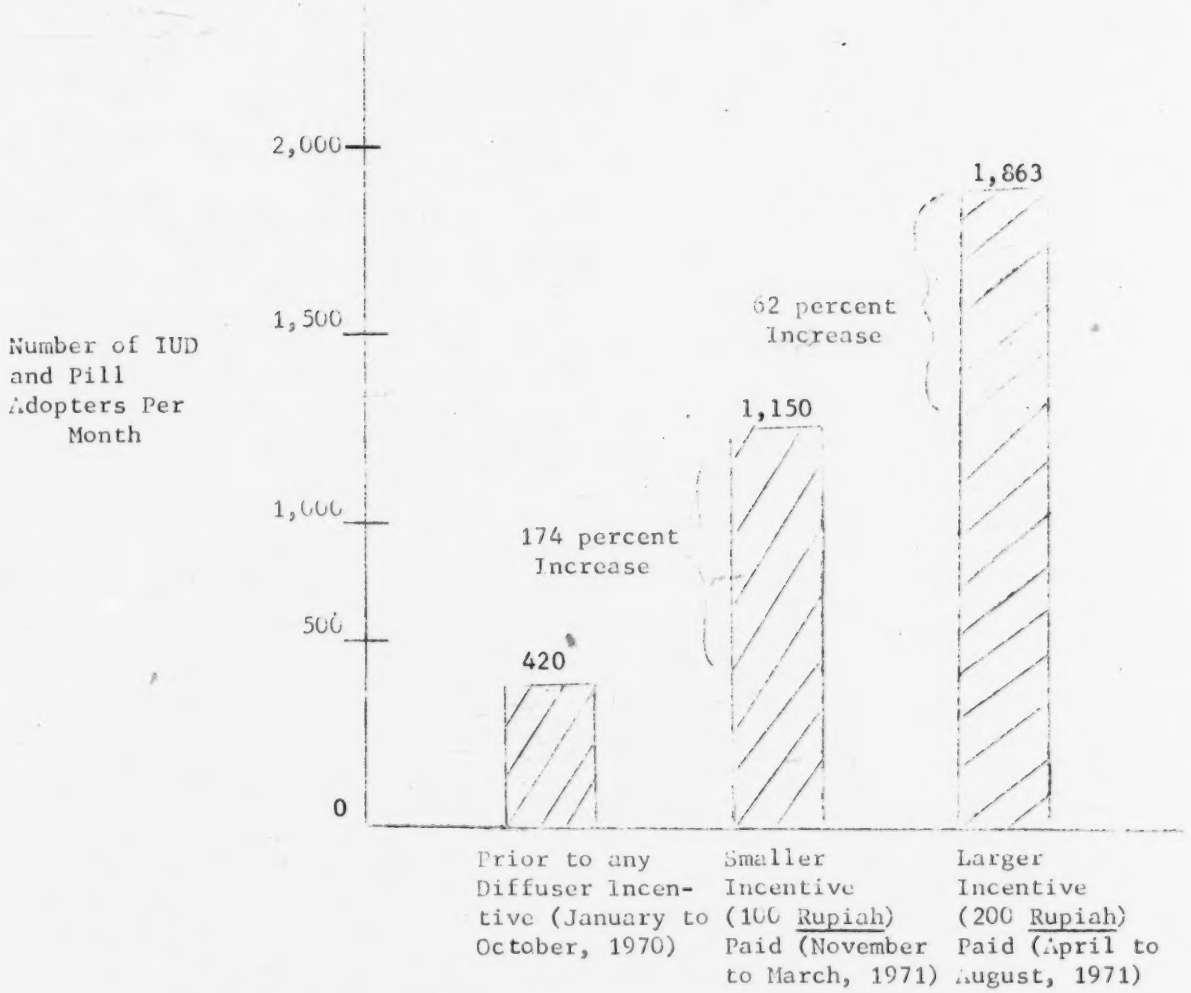

Figure 2. Initiation of a Smaller, and a Larger, Diffuser Incentive in Indonesia Led to an Increase in Rates of Adoption of IUD and Pills.

Source: Rogers (1971b).

Lastly, the quasi-experiments on family planning incentives suffer from limitations in the generalizability of their results. The units of study have generally been quite small in number and non-representative in their original selection: Nine factories in India, three tea plantations, one rural township in Taiwan. Further, these various researches do not "add up" to provide a bigger picture of understandings about the effects of incentives. Much more could be learned at little extra cost if these quasi-experimental studies had been planned and executed in a comparative way, so that similar hypotheses had been tested in each of the research settings. Because quasi-experiments often "just happen", they are difficult to cooridnate in a concerted and comparative approach. Family planning programs are national in nature, and as long as national officials and researchers initiate, design, and conduct experiments on incentives, the multi-national perspective will be missing.

However, in the closely-related field of agricultural diffusion, two different sets of comparative multi-national field experiments were successfully conducted in the late 1960s. The first was carried out in India and Costa Rica, mainly under UNESCO sponsorship (Roy and others, 1968); the second was conducted in Brazil, Nigeria, and India, mainly under U.S. AID sponsorship (Rogers and others, 1970). Both investigations...

1. Dealt mainly with testing alternative communication strategies for diffusing agricultural innovations to villagers.

2. Were conducted by indigenous research institutes, with limited technical assistance form foreign social scientists, who were resident in most cases.

3. Achieved a degree of comparative design through (1) a series of research planning meetings that involved both host country and foreign researchers, and (2) the part-time technical advice of a social scientist mainly responsible for the comparative aspects (who is the author of the present report).

4. Were financed heavily from international agencies, but with some host country support, and with the approval of the host country governments.

5. Demonstrate that multi-national, comparative experiments can be done, although important difficulties must be overcome (these will be discussed in Chapter 6 of the present report).

Generation III: Future Multi-National Experiments on Incentives

The early 1970s, as we have just shown, marked the beginning of the age of experimentation with family planning incentives, especially those of a non-birth nature. Yet these various experiments, both those currently underway and those being planned, lack integration. Each is typically designed as an autonomous experiment by itself, without much thought of possible comparison with parallel experiments, or without consideration for the generalization of the results to broader audiences or situations. None of the current experimenters are yet fully aware of each others' methodologies or findings.

There is considerable intellectual profit in multi-cultural, comparative experimental designs.

1. There is an <u>educational value</u> to the researchers conducting the interrelated experiments, as they learn from each other about experimental methodology and about the human behavior they are studying. Their comparative experience provides some answers to the problems they face in conducting the experiments.

2. <u>Extra knowledge</u> about the effects of incentives is provided by the comparative approach, than could be gained by each of the separate experiments. This is an example of synergy, that the whole is greater than the sum of the parts.

3. <u>Generalizability</u> of the experimental results is wider due to the broader range of socio-cultural conditions represented by the experiments. If the results are similar across, say three countries, they are much more likely to be accepted as a basis for policy-making in a fourth country. But a single-country experiment seldom provides convincing evidence to a policy-maker in another country, other than perhaps that the experiment ought to be replicated in his own country.

Further, and perhaps more important, the "experimenters" vay widely in their competence as researchers. They may be mainly program officials who are trying out a novel policy alternative; their skill and experience as experimenters is naturally limited, and their objectivity in evaluating their innovative approaches may sometimes be questioned. None of the staff responsible for the current round of incentive quasi-experiments have previous experience in conducting field experiments on human behavior change, one of the most difficult and demanding types of behavioral science research.

The current round of incentive quasi-experiments can be critiqued on their degree of methodological sophistication. For instance, none of them include an explicit control group in their research design. Further, none of the present "experiments" feature random assignment of treatments to subjects. As a result, the results of the second generation of quasi-experiments will not test the effects of higher incentive payments, or of non-birth incentives, as precisely as would otherwise be possible. For example, it will not be possible to draw conclusions about how much effect these incentives have, independent of the effects of the regular family planning program. Unfortunately, this latter effect will be included as a residual in the incentive treatment's total effect, and cannot be separated. Further, because of the methods used to select the experimental units (villages, families, etc.), few claims can be made for the generalizability of the research conclusions, once they are available.

These remarks are not intended as criticism of the current generation of quasi-experimental researches. In fact, under the particular circumstances, none of the "experiments" probably could have been initiated in any other way, or by anyone else.

But now is the time to thoroughly review the incentive experiments underway and planned, in order to design the third generation of researches on family planning incentives. It was with this need in mind that the Population Council and the U.S. Agency for International Development agreed to commission the present study.

We summarize the chronology of the three generations of incentives research in Table 4.

The third generation of incentives experiments is planned for several Asian countries, to be conducted (1) on a multi-national, comparative basis, so that the results will synergisticly constitute something more than a series of unrelated studies, and (2) with designs that more closely approach true experiments, in that control groups are included, as well as random assignment of treatments to subjects, so that more precise conclusions about treatment effects can be drawn. A more specific proposal for this project will be presented in Chapter 6 of the present report.

Clearly the main questions needing answers in these forthcoming experiments are: What is the ideal combination of incentive policies (for example, non-birth versus contraception, delayed versus immediate) (1) to optimize the rate of adoption of a family planning innovation and (2) to obtain desired declines in fertility rates at a minimum level of efficiency? The answers can only be found through an integrated series of well-designed and well-conducted field experiments in which various types of incentives are tested.

Such future studies should study designs for incentive programs that miximize the "quantity" aspects of their effects, and minimize the usual low "quality" consequences of incentives. Our conclusion, based on the present synthesis, is that higher quantity and quality effects of incentives are possible, although they are far from being reached by present incentive programs. If such optimum incentive schemes can be designed, based on behavioral science, we may be able to solve society's population problem without recourse to more coercive measures that would violate or destroy individual values of independence and freedom.

The field experiments on family planning incentives in Asia are not only valuable for the understandings they provide directly about changing fertility behavior (a type of behavior that is tied to particularly strongly-held beliefs), but also becasue these studies are illustrative of what Campbell (Forthcoming) terms

Table 4. Characteristics of the Three Generations of Behavioral Research on Incentives.

Research Generation	Types of Incentives Tested	Predominant Research Design
I	Smaller, contraception, immediate (for both adopters and diffusers)	Survey research of an evaluative nature
II	Larger, non-birth, deferred (for adopters)	Quasi-experiments; survey evaluations of exemplary incentive program
III	(1) Larger, non-birth deferred (for adopters) (2) Larger, contraception, immediate (for adopters)	"True" experiments with randomization of subjects to treatments and a control group; as part of a multi-national, comparative design.

the "experimenting society". Such a social system is one which will try out proposed solutions to important social problems, which will make "hard-headed and multi-dimensional evaluations of the outcomes", and which will then try other alternatives when evaluation shows one reform to have been ineffective or harmful.

Unfortunately, Campbell (Forthcoming) concludes that we do not have such a society today. Not only are most reforms advocated as though they were certain to be successful (Campbell, 1969), but social scientists generally lack the opportunity or the ability to conduct field experiments that are scientificly correct, politically feasible, and ethically acceptable. However, numerous types of experimental designs, especially improved versions of quasi-experiments, have been recently suggested by Campbell (1968, pp. 259-263; 1969) to remedy the methodological lacunae. Other reasons for some limited optimism are provide recently by several important experimental tests of new public policies.

One example is the series of field experiments on "negative income taxes" for low-income people in New Jersey, Pennsylvania, Iowa, North Carolina, Indiana, Washington, and Colorado. These studies were begun in 1968 in order to understand the effect of a guaranteed minimum income on motivation to work, migration, children's health and school performance, and attitudes toward self and others. The field experiments were planned by the Institute for Research on Poverty at the University of Wisconsin, and were sponsored by the U.S. Office of Economic Opportunity, the U.S. Department of Health, Education, and Welfare, and the Ford Foundation. Some of the early results, plus certain of the methodological lessons are now available from Bawden (1970), Orcutt and Orcutt (1968), and Watts (1969). Perhaps the greater significance of the research results, whatever they may turn out to be, is overshadowed by the fact that the federal government in the U.S. was willing to experimentally evaluate a proposed reform before enacting it as law. This is a step, although only one toward Campbell's (Forthcoming) notion of the experimenting society.

The formation of any type of program policy consists of five sequential steps.

1. Monitor and evaluate the program performance of the existing policy.
2. Identify problems with the existing policy.
3. Propose new alternatives to the present policy.
4. Test the effectiveness of these alternatives.
5. Implement the best alternative, and monitor its performance.

In the past many national family planning programs implemented incentive policies without any empirical basis for expecting the intended results. Step #4 was skipped. This is a dangerous procedure. Before initiating a family planning incentive, or changing an existing incentive policy, the new alternative should be tested in a field experiment. Perhaps unexpected problems may arise from the new alternative. The only way to find out is through experimentation.

Chapter 2

THE ERNAKULAM VASECTOMY CAMPAIGNS*

In a strict sense the Ernakulam vasectomy** campaigns of 1970-71 are less an experiment than an amazingly successful and novel program. There was no randomization of treatments to subjects, nor a control group, nor were any hypotheses intentionally tested. But there is no doubt about the success of the campaigns. In the third and largest campaign (in July, 1971), 63,418 sterilizations were performed in a one-month period, which is 21 times the maximum number of sterilizations conducted in any one month in any other district in India since the inception of the vasectomy program in 1957. So this Ernakulam campaign was by far the most successful, and largest, in India, and probably in the world.

How was such a mamoth motivational task accomplished? One of the crucial ingredients was an adopter incentive about five times the usual amount (114 rupees instead of the usual 21 rupees for vasectomy). In this chapter of the present report, we discuss the role of these higher incentives in achieving the spectacular success of the Ernakulam campaigns, with a focus on what understandings were gained and on implications for future incentive experiments.

We begin, however, with a short description of the Ernakulam campaigns, and the various factors involved in their success.

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*In addition to the author's interviews with S. Krishnakumar, the District Collector who organized the Ernakulam campaigns, and with Fred Shaw, the State of Kerala CARE Coordinator who assisted with the incentive payments, the present section is based upon the District Collector's report (Krishnakumar, 1971) and an analysis of the campaigns by Soni (1971).

**While we refer to the Ernakulam campaigns as "vasectomy" campaigns, several hundred tubectomies were also included in the number of adopters achieved.

In Chapter 1 of this report, we showed how a one-day pilot campaign in August, 1970, in three villages in Ernakulam District, Kerala State, India; was followed by a month-long campaign in November-December, 1970, throughout the District; and by a second month-long campaign in July, 1971. The three campaigns reached 746 adopters, 15,665 adopters, and 63,418 adopters, respectively.

The campaign approach to family planning has been tried in most countries, generally with modestly successful results.* In India, campaigns have been widely utilized for over 20 years to promote the adoption of agricultural, health, or family planning ideas. But none of these thousands of local campaigns have been as successful as the Ernakulam vasectomy campaigns. What factors underly its distinctive success?**

Higher Incentives

1. The relatively higher incentives that were paid to the adopters and diffusers. Although the higher incentives paid in the Ernakulam campaigns were not the only reason for their success, we feel they were the most important single factor. Without the much higher incentive payments, we doubt that the Ernakulam campaigns

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*At least successful enough to suggest the proposition that: When multiple communication channels are used in family planning campaigns, they have greater audience effects than when each of the communication channels is used singly. When a number of different mass media and inter-personal channels are simultaneously carrying complementary messages to the same audience, as in a campaign, the changes in audience behavior by the channels in concert is greater than the sum of the effects of each. After reviewing several family planning campaigns, Schramm (1971, p. 35) concluded: "Discrete campaigns have much to recommend them as variations on a continuous program".

**Two oversimplified and, in our opinion, false reasons for the success of the Ernakulam campaigns given by some critics are: (1) the missreporting of results, and (2) the extreme coercion of vasectomy adopters. We are convinced that the spectacular number of adopters actually was achieved, and that very few, if any, of the adopters were forced into a decision for vasectomy. Nevertheless, considerable persuasive influences were brought to bear in the campaigns.

could have achieved anywhere near the record total of 79,169 adopters in the three campaigns.* This opinion of the importance of incentives in the campaigns' success is shared by the campaigns' organizer (Krishnakumar, 1971), independent analysts of the Ernakulam experience (Soni, 1971), and by the central government of India, who concluded that higher incentives should be paid in 25 additional district vasectomy campaigns that were patterned after the Ernakulam campaigns.

The incentives paid in the Ernakulam sterilization campaigns were about five times as high as the usual payments.

	Adopter Incentives	Diffuser Incentives
1. Usual incentive payments for vasectomy	21 rupees ($2.80 U.S.)	2 rupees ($0.27 U.S.)
2. November-December, 1970, vasectomy campaign	86 rupees ($11.47 U.S.)	5 rupees ($0.67 U.S.)
3. July, 1971, vasectomy campaign	114 rupees ($15.20 U.S.)	10 rupees ($1.33 U.S.)

Actually, the size of these adopter incentives in Ernakulam District were magnified in three ways: (1) the July, 1971, campaign was timed by its organizer so that it occurred during the rainy season in Kerala State, when farmers are poorest and hungriest, (2) all government employees and most industrial workers in Ernakulam District who had a sterilization during the campaign were granted six days of paid leave (equivalent to about 30 or 40 rupees in wages), in which to recover, and (3) the July, 1971 campaign incentive of 114 rupees included 40 rupees of "in kind" incentives which represent a market value of about 55 rupees (as we show later

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*Some indirect evidence for this point is provided by a series of vasectomy campaigns conducted in 1971-72 in districts in Tamil Nadu, a state bordering Kerala and with approximately similar socio-cultural conditions. The Tamil Nadu district campaigns were patterned after the Ernakulam campaigns in that the district collectors were involved, and in other ways, but higher incentives were not paid. The number of adopters achieved in the Tamil Nadu districts were much less than in Ernakulam District, averaging about 8,000 per district.

in this section.) Thus many of the acceptors in July, 1971, campaign received an adopter incentive equivalent to more than 174 rupees ($23.20 U.S.), a rather considerable sum to a poor man.

The high incentives, coupled with the record number of adopters secured in the campaigns, meant that the total bill for incentive payments was very, very large. The total amount of incentives paid in the July, 1971, campaign was over one million dollars (U.S.), including $964,000 for adopter incentives and $84,557 for diffuser incentives. This amount must stand as a world's record for one month of incentive payments; in fact, it is a larger total amount of funds than are paid annually in any national family planning incentive program except India's.

Direct Campaign Responsibility by
the District Collector

2. The District Collector assumed direct responsibility for the vasectomy campaigns. The District Collector (called "District Magistrate" in some parts of India) is the most powerful representative of government at the district level of India. He is a member of the Indian Administrative Service, the elite corps of civil servants, and is responsible for taxation, law and order, economic development, and all other government functions. Although family planning is officially part of the district collector's job, it is one of a great many responsibilities and it is largely delegated to the district family planning officer in most cases.

In Ernakulam District, however, family planning has a very high priority. The district is densely populated with 2.4 million people, unemployment is high, and natural resources are limited. Even though the District includes the seaport city of Cochin, it is highly rural. One indication of the importance of the population problem in Ernakulam District is the fact that it was chosen by the central government to be one of the 51 districts in India for an especially intensive family planning approach.* The importance of the population problem was also

*The past performance of Ernakulam District in family planning activities is rather good; in fact, it ranked first or second of the 10 districts in Kerala State, prior to the vasectomy campaigns.

recognized by local leaders; at a District Development Seminar in August, 1970, family planning was given the highest priority of any development program in the District. It was at this Seminar that the District Collector announced the month-long vasectomy canpaign for November-December, 1970 (the one-day pilot vasectomy campaign had already been held in three villages in July, 1970).

At this time the 31 year old District Collector, Mr. S. Krishnakumar, had served in the District for 16 months; during this time he had directed several local campaigns concerned with land reform and other development issues. Campaigns for family planning had been held previously in the District; for instance, each year an official Family Planning Fortnight is held in every district in India.* So the choice of a campaign approach by the District Collector was not surprising, although he intended his efforts to be much more successful then previous campaigns.

One way to facilitate their success was to throw his personal power behind them. This direct involvement of the District Collector made the campaigns different than any previous family planning campaign in India: The Ernakulam vasectomy campaigns were an all-out effort of all local government officials. They were ordered to drop their regular duties to work on the vasectomy campaigns. So tax officials went door-to-door to motivate vasectomy adopters, government publicity officials devoted full-time efforts to mass media activities for the campaign, etc. As the government is probably the largest single employer in the District, and because these officials are organized to reach every citizen in the District with various services, the vasectomy campaign was well-staffed and soundly structured. And the campaigns were a total government effort, involving every ministry, not just those officials regularly assigned to family planning.

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*The Family Planning Fortnights in Kerala State have had a relatively mild degree of success in that the past 11 Fortnights have averaged 5,800 adopters, about six times the usual rate of adoption per two-week period.

The District Collector's direct leadership of the campaign had other desirable consequences. First, it meant that the campaign was legitimized in the eyes of local citizens because the full authority of government was behind it. Further, the District Collector had the power to appeal successfully to various private bodies in the District for their assistance: Newspapers, to promote the campaign; industrial leaders, to contribute toward the cost of the incentive payments, and to allow their workers who adopted sterilization to have six days' leave for recovery; legislators and other elected officials, to give talks promoting the campaign; etc. Thus the Ernakulam vasectomy campaigns were not strictly a government program, but also involved private institutions.

Lastly, the District Collector's direct involvement in the campaigns meant that considerable administrative and managerial skills were contributed. These were needed; on some days during the July, 1971 campaign, as many as 2,800 sterilizations were performed per day. District Collector Krishnakumar has a Bachelor's degree in engineering, some post-graduate training in modern management, and several years of experience in government railways. His use of sound management principles in organizaing the campaigns is shown by his insistence on written job-descriptions for each official; his use of queing theory and other industrial management techniques to speed the long lines of men through the campaign sterilization center; and his establishment of a control room at this center to coordinate the various campaign activities, including the house-to-house contacts with individuals, transportation of adopters to the center, maintaining an adequate supply of doctors to perform the oeprations, etc.

Even though the District Collector was highly involved in directing the campaign, it did not demand his full-time efforts. Some 10-hour days were spent in organizing the campaign, but once it was underway, Krishnakumar delegated much of the operational details so that he only spent about one hour per day at the campaign center.

Krishnakumar's personal abilities were certainly a partial explanation for the Ernakulam campaigns' success. Unfortunately, there is only one Krishnakumar, and he cannot run vasectomy campaigns in every district in India. But the strategies and principles underlying Krishnakumar's campaigns can be identified, and used elsewhere.

Local Leadership

3. Local community leadership was widely involved in motivating adopters of vasectomy. We have already mentioned that the Ernakulam campaigns were more than just a governmental effort; at the local level, 501 committees were organized by the District Collector to contact potential adopters on a house-to-house basis, to conduct local public meetings to encourage participation in the campaign, and to concentrate campaign attention on selected sub-audiences in the District (like slum residents, industrial employees, low castes, etc.). Some of the local committees were the panchayats (governing councils) of the 101 administrative villages in the District, others were for cities or municipalities, and 300 were for the special sub-audiences.

Rather than contacting each of the 2.4 million residents of Ernakulam District, a hopelessly mammoth task, the persuasive efforts of the local committees were aimed at "eligible couples," parents who had two or more living children. The identification of the eligible couples was done by family planning officials before the campaigns began, and these lists were made available to the local campaign committees in each community. Thus the particualr audience for the campaigns was specified and identified in advance.

Each village and municipality in the District was assigned a target number of sterilizations, computed as 6.5 per thousand population. Each of the villages were scheduled for a specific day during the campaign, so as to facilitate promotional activities and transportation of the adopters to Cochin. The campaign activities were concentrated entirely on one village or municipality during the day prior to

its scheduled day for transportation of adopters to Cochin. Thus the persuasive efforts of the campaign were concentrated geographically in an intensive manner; further, the scheduling of villages by days at the operating theater helped control, and equalize, the daily load of operations. In the July, 1971 campaign, however, about 60 percent of the adopters came from outside of Ernakulam District, and these adopters could not be regulated, so some peak days in operations occurred. But extra doctors were kept on tap, who could be called on to meet such emergencies. Further, the sterilization center in the Ernakulam Town Hall stayed open at night until all those desiring operations were satisfied; on at least one day this meant staying open all night.

Higher Quality Contraceptive Services

4. Higher quality contraceptive services were provided in the Ernakulam vasectomy campaigns. The higher quality services were facilitated by the central location of the campaign headquarters in the Ernakulam Town Hall building. This centralization also made it easier to maintain a quality control on the operations and attendant activities, which were organized much like an assembly line.

For example, each man who came to the center was first screened to be sure he met the legal requirements as to husband's and wife's ages, number of children, previous sterilization, or local infections or other diseases that would preclude vasectomization. In the November-December, 1970 campaign, 960 of the 15,965 individuals were rejected (6.0 percent), and in the July 1971 campaign, 2,939 of the 66,357 individuals (4.4 percent) were turned away. This strict screening is in sharp contrast to usual (non-campaign) practices, where up to 50 percent of the sterilizations may violate at least one of the offical eligibility criteria (Repetto, 1969).

So the campaigns' quality control over eligibility for sterilization helped avoid a usual consequence of paying adopter and diffuser incentives: Lower "quality"

of the average adoption (Rogers, 1971a), that seems to often accompany the larger quantity of adopters.

Further evidence of the high quality of contraceptive services during the campaigns was provided by the relatively lower proportion of medical complications from the sterilizations. In the November-December, 1970 campaign, only 3 percent of the adopters had minor complications requiring medical attention, and only 0.4 percent of all adopters required hospitalization. In the July, 1971 campaign the record was similar, although exact details have not been published.

Follow-up arrangements after the operation were especially detailed. The family planning staff and the local campaign committees were responsible for follow-up of each adopter within three days of the operation, again after ten days, once a week for the next month, and once a month for two years. There is no evidence that all of these follow-up visits were, and are, being made. Further, no follow-up arrangements were made for the approximately 60 percent of the adopters in the July, 1971 campaign who lived outside of Ernakulam District. Nevertheless, the efforts to follow-up adopters in the District are much more ambitious than for the usual vasectomy operation, and may have helped in preventing the usual negative rumors about the side-effects of a family planning method.

Festival Spirit

5. A festival spirit was created in the Ernakulam vasectomy campaigns. Under ordinary conditions, the decision for vasectomy is a private one in India. The individual adopter may fear the ridicule of his friends and neighbors. He may perceive that he is taking an act not yet fully sanctioned by the norms of his community.

In the Erankulam campaigns, these usual difficulties were overcome, in part, by creation of a festival spirit surrounding the decisions by thousands of men to undergo sterlization. The mass media were employed to convey the message that "Everybody's doing it" in the District. The concentration of the door-to-door

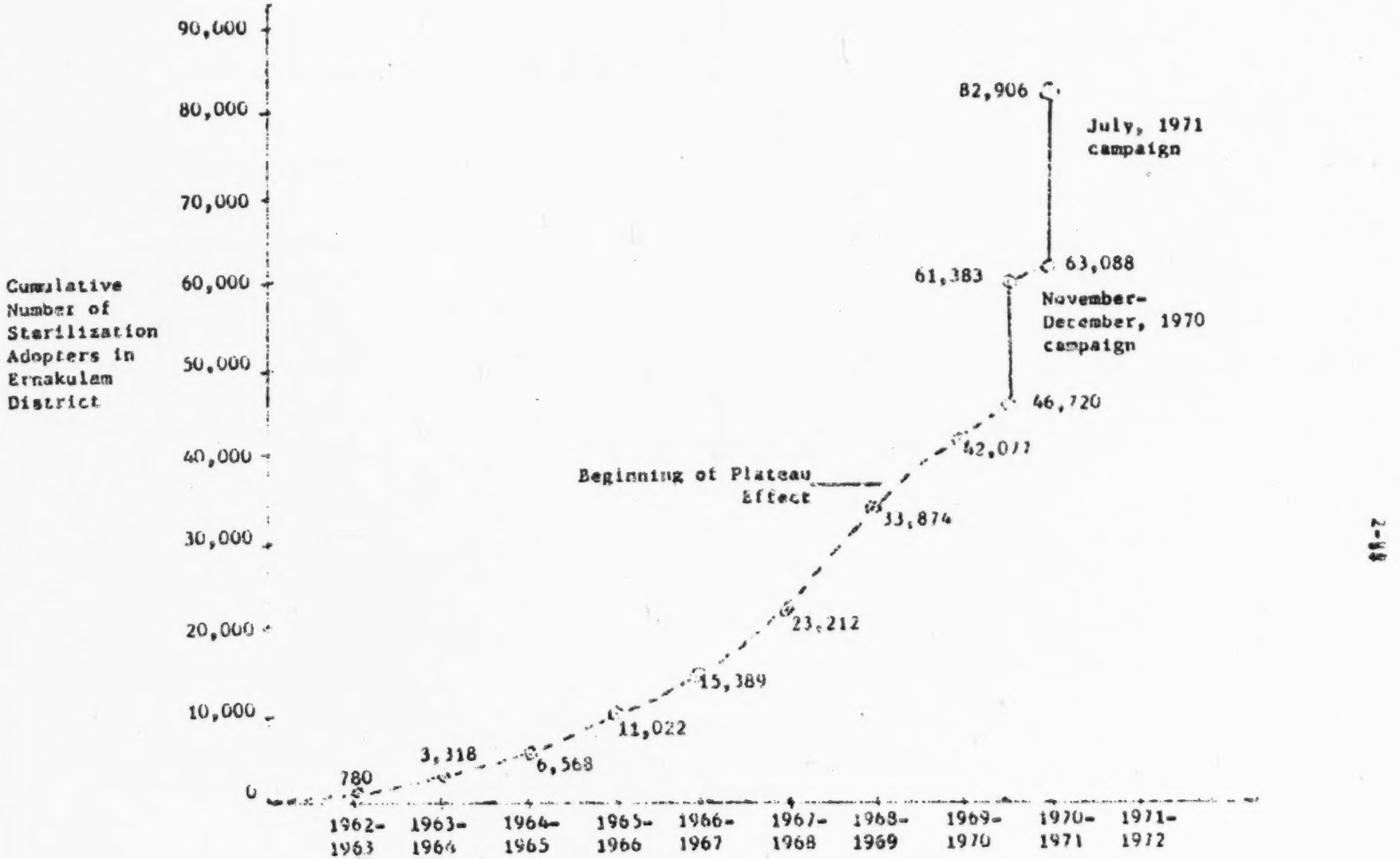

Figure 3. The two Sterilization in Ernakulam District, India, achieved a total of 24,481 adopters, an especially impressive accomplishment because the rate of adoption had previously begun to level off.

couples with three or more children had been sterilized. Another 16 percent adopted during the campaigns, making a total of 38 percent (Soni, 1971, p.2).

3. The lack of adequate informational and motivational activities is a more important constraint in achieving higher numbers of adopters, than the further provision of clinical and medical services. Many family planning officials in India have argued that "demand creation" for contraception is a less important factor limiting higher rates of adoption than the availability of medical/clinical services, and that once more adequate services are provided, the communication aspects of the family planning program will take care of themselves.

The Ernakulam vasectomy campaigns do not trace their success to providing more sterilization clinics; in fact, almost all of the operations were performed at one location. So the Ernakulam success seems due much more to an effective motivational effort,* than to just providing more clinical/medical services,** at least in the eyes of the campaign organizer (Krishnakumar, 1971, p. 76) and its most acute analyst (Soni, 1971).

4. The payment of relatively higher adopter (and diffuser) incentives played a very important part in achieveing the impressive number of adopters in the Ernakulam vasectomy campaigns, especially those adopters who traveled from outside of the District.

We have previously argued the general importance of the higher incentives in achieving the campaigns' successes. This seems to be especially true for those adopters from outside of Ernakulam District.

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*Most of the communication efforts in the Ernakulam sterilization drives were devoted to persuasion and motivation, as the previous five years of family planning mass media campaigns in India had already accomplished a high degree of knowledge about family planning.

**Although it is true that a higher quality of medical services were provided during the campaigns, as we argued previously.

The big surprise of the July, 1971 campaign was the high response from individuals outside of Ernakulam District. The November-December, 1970 campaign reached 14,663 adopters in the District, and 342 from outside. Accordingly, the second campaign was targeted at a total of 20,000 sterlizations: 15,000 from Ernakulam District, and 5,000 from outside. However, the campaign actually achieved 63,418 adopters, of which 19,818 were from Ernakulam, and 43,595 from the nine other districts in Kerala State (and 5 from outside of the State). Most of the 43,595 were from adjoining districts, although 247 of them traveled an average of 180 miles from Cannannore District (Krishnakumar, 1971, p. 139)! In the three disticts nearest Ernakulam, rates of vasectomization in the July, 1971 campaign were more than half those achieved in Ernakulam District.*

The government officials in these other districts did not participate in the July, 1971 Ernakulam campaign, and so there was no organized door-to-door contact by officials. Most of the other elements of the campaign, however, reached these audiences outside of Ernakulam District: The higher adopter and diffuser incentives, the high quality medical service, the many mass media messages about the campaign, etc. Further, transportation costs by bus or train were paid for each adopter and his accompanying canvasser, a policy that certainly encouraged adopters to travel to Ernakulam. Significantly, when this transportation cost was not paid in the November-December, 1970 campaign, only 342 of the 15,005 adopters traveled to Ernakulam from outside the District. Thus, for an average extra cost of about 6.45 rupees ($0.86 U.S.) per adopter (from outside the District), the July, 1971 vasectomy campaign became essentially a Kerala State campaign, although headquartered in one district.

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*The districts are Trichur with 12,363 vasectomy adopters, Kottayam with 11,585, and Alleppey with 10,743 (Krishnakumar, 1971, p. 139).

The 43,595 adopters from outside the District provide strong evidence for the recruiting power (1) of the higher adopter incentives, which provide a profit motive for the adopter, and (2) of the higher diffuser incentives (which were increased from the regular fee of only 2 rupees per adoption, to 10 rupees, during the second campaign).* An informal system of vasectomy canvassers already existed in the other nine Kerala districts; the higher incentives simply acted to energize this persuasive network. A great many of the non-Ernakulam District adopters were brought to Ernakulam by these canvassers.

In fact, the large number of non-Ernakulam adopters in the July, 1971 campaign suggests that the recruiting efforts of government officials in contacting households (and their legitimizing function), and the organization of the local committees, could be dropped from the campaign procedures, as long as higher adopter and diffuser incentives ar paid.

5. Family planning incentives have a greater effect when they are paid "in kind" than when they are paid in cash. This proposition needs a precise test. An experiment could be designed in which the two treatments are an equivalent money value incentive paid in two forms: (1) in cash, and (2) in kind. The dependent variable would be the number of adopters achieved with each kind of treatment. Or, the two types of incentives could both be offered to adopters to see how many would choose each kind.

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*A similar diffuser incentive of 10 rupees (although accompanied by an adopter incentive of only 20 rupees) was paid in the nearby Tamil Nadu State vasectomy program; an effective canvasser system sprang up, which reached into adjoining states in the early 1960s, as Repetto (1969) shows.

Of the total adopter incentive of 114 rupees paid in the July, 1971 campaign, 64 rupees were paid "in kind" -- as 3 kilograms of rice, a sari, a dhoti, a plastic bag (or bucket), etc. (Krishnakumar, 1971, pp. 146-147). The organizers of the Ernakulam campaigns argue that the "in kind" incentives were of greater effectiveness because:

1. They are more visible to the potential adopter than is money, in that he can observe other adopters wearing their new clothes, carrying their bags of rice, etc.
2. They represent a higher cash equivalent market value than their actual cost to the campaign organizers. For instance, the 40 rupees of "in kind" incentives contributed by CARE/U.S. AID in the July, 1971 campaign is equivalent to a market value of about 55 rupees; this advantage is gained by large volume purchasing, tax freedom, etc.
3. They are perceived as especially valuable or prestigious by the adopters. For instance, the 3 kilograms of rice was of especially high quality and thus represented a special treat for the adopter and his family, perhaps roughly equivalent to the meaning of caviar for an American family.
4. They help ensure a fuller distribution of the incentive benefits to the adopter's family members, for example, the food for his children and the sari for his wife help guarantee that the incentives would not be entirely spent on alcohol (as is feared by some observers), unless the "in kind" incentives are sold.
5. They may be more socially acceptable for the adopter than a cash incentive; many Asians are hesitant to accept cash, but an "in kind" incentive is perceived as a gift.
6. The higher adopter (and diffuser) incentives paid in the Ernakulam vasectomy campaigns had a greater effect because they were offered as part of a campaign, and hence were accompanied by intensive promotional efforts which magnified their effects. The organizer of the Ernakulam campaigns

speculates that the adopter incentives of 114 rupees for vasectomy, if not accompanied by the campaign, might have raised the District's usual level of adoption (of about 500 vasectomies per month) up to perhaps 1,000 per month. But the higher incentives alone would never be expected to jump the number of adopters per month to 15,000, or to 20,000! This possibility is an illustration of the synergistic aspects of a campaign; each factor contributing toward the campaign's total achievements has an interactive effect on the other underlying factors. And so the total effect of these various factors is greater than simply the sum of their independent effects.

7. Relatively higher incentives lead not only to higher rates of adoption of a family planning method, but also to greater efficiency in cost per birth prevented, although not in cost per adopter. One of the justifications sometimes given for higher incentive payments is that even though they obviously raise the total cost of the campaign, they may also lead to increased cost-effectiveness because of the larger volume of adopters, across which the fixed costs of the program are spread. The organizers of the Ernakulam campaigns give this type of justification for paying higher incentives: "The [higher] incentives do not also make the program costlier, as ... the cost of additional incentives can be more than offset by the savings from the increased number of acceptances" (Krishnakumar, 1971, p. 163). In essence, this argument is that higher incentives → more adopters → lower cost per adopter.

However, an analysis by Soni (1971, p.5) shows that the total cost per adopter for the July, 1971 campaign of 145 rupees* is rather considerably more than the comparable cost of 104 rupees per vasectomy adopter for the past three years of the non-campaign approach in Ernakulam District. When efficiency is computed on the

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*In addition to the 114 rupees in adopter incentives, and the 10 rupees in diffuser incentives, an additional 21 rupees per adopter was spent on administration, publicity, etc.

basis of the cost per birth-prevented, rather than per adopter, the July, 1971 campaign and the past three years' program are about the same, at a cost of 65 rupees per birth-prevented. In both approaches, the ratio of benefits for births-prevented/cost per adopter is about 15:1, illustrating the general economic attractiveness of investment in either type of vasectomy incentive approach.

8. The much higher rates of adoption of sterilization during the campaigns lead to lower-than-average rates of adoption during non-campaign periods.*

What long-range effect have the campaigns had on rates of sterilization under non-campaign conditions? A partial answer is provided by the fact that during the six months between the November-December, 1970 campaign and the July, 1971 campaign, Ernakulam District averaged 284 sterilizations per month, somewhat less than the approximately 500 sterilizations averaged in the District prior to the November-December, 1970 campaign. This fall-off might be due to fewer receptive couples remaining after the first campaign, and because of the return to the lower adopter and diffuser incentives.

9. The Ernakulam vasectomy campaigns mainly reached adopters who are relatively poor, but they are no poorer than the vasectomy adopters attracted in the non-campaign approach. Whether measured by income, education, or occupation, the adopters in the Ernakulam campaigns are socio-economically disadvantaged. For instance, 79 percent of the adopters in the July, 1971 campaign earned under 100 rupees per month. Most of the adopters were illiterate, and they worked predominantly as agriculturalists or as urban manual laborers. So the vasectomy adopters were poor men; they seemed to be even poorer than the average resident of Ernakulam District** (although exact data for this comparison are not available).

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*A similar pattern has been experienced in Taiwan where one-month campaigns with a special incentive (consisting of providing IUD insertions at no cost, or at a lower-than-usual cost, to adopters) result in higher rates of adoption during the campaign, followed by lower-than-usual rates for a month or two, which soon spring back; the net effect is a definite gain (Keeny and others, 1970, p.31).

**This poorer-than-average characteristic may be due to the payment of incentives, or perhaps it is idiosyncratic to vasectomy (as a family planning method that attracts particularly poor men as adopters). Future research ought to find out.

In an earlier section of the present report we suggested the generalization from previous research that adopter incentives lead to adoption of an innovation by different individuals than would otherwise adopt. Usually the first adopters of an innovation are the socio-economic elites, but when incentives are paid (at least for vasectomy) the relatively lower-status individuals in a system adopt first.

In the present case, where relatively larger adopter incentives were paid, we might expect the Ernakulam campaigns to reach even poorer individuals than the usual, non-campaign approach. But this was not so. For example, the percentage of individuals with monthly incomes of less than 100 rupees are:

	Percentage with monthly incomes under 100 rupees
1. July, 1971 campaign adopters	79%
2. Vasectomy adopters in Ernakulam District under non-campaign conditions	80%

So the campaign adopters are relatively poorer than the average resident of Ernakulam district, but they are not more socio-economically disadvantaged than non-campaign vasectomy adopters.

Reproduciblity of the Ernakulam Campaign Experiences

To what extent is the experience at Ernakulam applicable to other districts in India? Within a month or so after the July, 1971 campaign, the central government in Delhi decided to launch similar vasectomy campaigns in 25 additional districts, each with a target of about 10 to 12 thousand sterilizations. Relatively higher adopter incentives (about 80 to 100 rupees per adopter, rather than the usual 20 rupees) were authorized. Unfortunately, the district collector in each of these districts were not provided with specialized training in the campaign principles underlying the Ernakulam success, and there was a tendency to over-emphasize the higher incentives while largely ignoring the other campaign management principles essential for success.

Nevertheless, several of these attempts to copy the Ernakulam campaign seem to be rather successful, thus providing evidence of the effect of higher incentives alone.

1. In Bulandshahar District, Uttar Pradesh State, over 14,000 vasectomies were performed in November-December, 1971 campaign.

2. All 19 districts in Gujrat State paid higher incentives in a two months' campaign in late 1971. A total of 231,000 sterilizations were achieved or about 12,160 per district.

3. In Gurgaon District, Haryana State, a two weeks' campaign in early December, 1971, gained 3,700 vasectomies out of the month-long goal of 7,000.

So these attempt to reproduce the Ernakulam success elsewhere were at least modestly effective, even though they seem to have overstressed the higher adopter incentives. The synergistic effects of combining higher incentives with the other principles from the Ernakulam campaign would be much greater.* For instance, in the Gurgaon District campaign little attention was paid (1) to involving the District Collector in the campaign, (2) to conducting a house-to-house canvass for potential adopters, (3) to involving local community leadership in the campaign, (4) to creating a festival spirit in the District, (5) to mobilizing the mass media for campaign purposed, or (6) to concentrating the campaign at selected, high priority sub-audiences within the District**

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*And from paying higher diffuser incentives, along with higher adopter incentives. For instance, in the Gujarat State campaigns the usual diffuser incentive of 2 rupees was raised to 20 rupees. In addition prizes were awarded to canvassers for high performance; a transistor radio was awarded for motivating 20 adopters.

**Dr. Dinesh C. Dubey of the National Family Planning Instituate, New Delhi, is analyzing data gathered from vasectomy adopters at several of the 25 attempts to replicate the Ernakulam campaigns in other districts, in order to determine which of the campaign principles is of greatest importance in explaining campaign success.

In order to gain complete understanding of the campaign principles so effectively demonstrated in the Ernakulam campaigns, key district official should have traveled to Cochin to actually see and participate in the July, 1971 Ernakulam campaign. That is unfortunately impossible now that the campaign is history. But a similar experience could now be re-created for training purposes. Mr. Krishnakumar should be asked to organize a short training workshop to be attended by the district collector and the district family planning officer from each district that intends to reproduce the Ernakulam experience. This workshop would meet in a district in which a vasectomy campaign was underway, and the workshop members would participate in operating the campaign. After the workshop, when the district officials returned to initiate their own campaigns, Mr. Krishnakumar would act as an on-the-spot consultant to their campaigns. Further, the workshop experience might be of interest to selected family planning officials from other countries contemplating family planning campaigns.

Otherwise, the full lessons taught by the Ernakulam vasectomy campaigns will not be fully learned and capitalized on. And that would indeed be a shame.

The Ernakulam Campaigns as Experiments

The vasectomy campaigns were certainly highly successful family planning programs. Part of this success is due to a number of novel procedures and strategies (such as the payment of much higher incentives) that demonstrate useful ways to break outside the bounds of current practice. Thus the Ernakulam campaigns enable us to gain important understanding about how to improve the effectiveness of family planning programs.

But in the usual sense of the word, the vasectomy campaigns do not constitute an experiment, nor were they ever intended to do so (alhtough one often hears them referred to by family planning officials as the "Ernakulam experiment"). Thus the research that we have just summarized belongs more in the first generation of incentives research, than in the second generation of quasi-experimental research.

Nevertheless, the analyses of the Ernakulam campaigns are rich in their yield of knowledge about the effects of incentives, and about other strategies of family planning communication. So the Ernakulam vasectomy campaigns are experiment-like in the sense that they test, as "treatments", various new strategies of change.

But if the Ernakulam campaigns had been conducted as an experiment, rather than just as a combination of various novel communication strategies in family planning, we could have obtained answers to the following questions:

1. What is the effect of paying higher incentives versus the various other campaign strategies that were used?

2. How much of the effectiveness of the Ernakulam campaigns was due to naturally-occurring factors (external to the campaign strategies that are identifiable)?

In order to obtain precise answers to these questions, each of the various strategies would have to have been assigned (randomly) to different communities or individuals in Ernakulam District. And certain units would have to receive none of these strategies, and thus constitute a control group. These research arrangements would certainly have cut down on the number of vasectomy adopters achieved by the campaigns. So some of the spectacular results would have been sacrificed in exchange for gaining knowledge.

Such exxperimentation may be possible in Ernakulam District in the future. The District Collector has requested the government of India to designate Ernakulam District as an "experimental district" in which novel policies could be tested (Krishnakumar, 1971, pp. 170-171). One of the strategies specifically identified for future research in Ernakulam District is the payment of group (community) incentives. It might also be possible to test the effect of non-birth incentives.

But one requirement for future conduct of such experiments would be the direct involvement of a competent research institution, ideally one located in the District.*

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*Evaluation research was conducted during the July, 1971 campaign (1) by the Gandhigram Institute for Rural Health and Family Planning, Gandhigram, Madurai District, Tamil Nadu State, and (2) the National Institute of Family Planning, New Delhi. Their studies were mostly concerned with the characteristics of the adopters, and the communication channels through which they were reached by the campaign. Reports from this research were not yet available at the time of the present report.

Chapter 3

INDIAN TEA ESTATES RETIREMENT BOND INCENTIVE PROGRAM*

Earlier in this report we outlined the general nature of the Indian tea estates ** non-birth incentive, first proposed by Dr. Ronald G. Ridker when he was an economist on the staff of the U.S. Agency for International Development in New Delhi, and implemented by the United Planters Association of South India (UPASI) since July, 1971. The UPASI incentive scheme is singularly unique in the world because it was the first non-birth incentive experiment to be initiated (although it only preceded the Taiwan educational bond study by four months).

Here we look at the nature of the tea estates and why they are an ideal locale for the experiment, at details of the non-birth incentive plan, and at implementation of the experiment. Lastly, we dicuss the UPASI educational bond scheme as an experiment and as a demonstration.

South India Tea Plantations

The three tea plantations on which the non-birth incentive experiment is being conducted lie within a few miles of Conoor city, located at a high altitude (about 5,000 to 8,000 feet above sea level) in the Nilgiris ("Blue Mountains") area of Tamil Nadu, Kerala, and Mysore States; plantation agriculture predominates here. The main crops are tea, coffee, rubber, and cardamon; many plantations produce all four of these commercial crops.

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*The material in this section is based on various UPASI publications; the two articles by Ridker (1969 and 1971); and interviews by the present author with (1) V.T. Chacko, Secretary of UPASI, Glenview, Conoor, Nilgiris District, Tamil Nadu, India, (2) Dr. Mrs. Vijaya Rahamathullah, Medical Advisor to the UPASI Comprehensive Labour Welfare Scheme, (3) M.S. Cherian, Director of the Motivational Unit of the UPASI Comprehensive Labour Welfare Scheme, and (4) Dallas Voran, U.S. Agency for International Development, New Delhi. In the present section we generally refer to the non-birth incentives as a "retirement bond," rather than as a "no-baby bonus" (actually it is a no-pregnancy bonus), which it is usually called by UPASI.

**These firms are called "plantations" as well as "estates" in India, and we use these terms synonymously in the present report.

The typical plantation in this region is absentee-owned (some of the owners live in England), and many of the plantations are organized as corporations. The typical plantation has an elaborate four-layer social structure, headed by the manager. Under him come divisional sub-managers, and "conductors", who superintend the work gangs. Each work gang consists of about 20 to 30 workers. All these employees, including the manager, live on the plantation. While there is usually a central headquarters on each plantation where the tea-drying plant, the plantation school, the hospital, and the company store are located, the workers for each division live together in small villages located in each division of the plantation. The houses are relatively small in size and are of standard construction. The estates' employees are highly unionized, and recent history has reportedly been marked by certain cases of labor-management conflict.

Thus each plantation is a relatively closed system, providing almost all of the institutional services needed by the workers. In fact, on some of the plantations located in remote areas, many workers never leave the plantation for a year at a time. This is a somewhat ideal condition for social experimentation, as the chances of external contamination of the treatment are slim.

The labor force on a tea plantation is usually employed as a family. The wife is the main wage-earner, typically beginning her day of tea-picking at about 8 a.m. and finishing at 5 or 6 p.m. The work is fairly difficult, involving bending to pick the fresh tea leaves, while carrying a basket of the picked leaves. The husband is employed on a task basis, only in the mornings, in pruning, weeding, or other field operations. The children are placed in a creche (provided by the plantation) during the mornings, and are cared for by the father in the afternoons.

Many of the employee families on the plantations in the Nilgiris area are Harijans (the so-called untouchable caste) that migrated from the lowlands to the mountain areas when the plantations were first organized, years ago. Surveys of the tea-pickers on the three experimental plantations indicate that about 75 percent

are illiterate, 55 percent have never seen a film and 12 percent listen to radio. So not only are the employees geographically isolated on the plantations, but they have relatively low exposure to mass media communication channels as well.

The benchmark survey on the three experimental plantations in 1971 also indicated that fairly (but not extremely) high fertility is characteristic of the tea-pickers, the women aged 31 to 40 already averaged about 4.5 births, with about 4.0 living children, plus 0.2 abortions. The level of contraceptive adoption by the plantation workers was quite low, prior to launching the no-baby bonus incentive program. For instance, a survey of 41 female employees on Sholarock Division, Parkside Estate showed that only four women had had tubectomy, one had adopted pills, and one was protected by condoms. And this low penetration of family planning ideas had occurred in spite of company-provided hospitals with contracpetive services, plus a company incentive of 100 rupees ($13.33 U.S.) for sterilization, in addition to the government adopter incentive of 30 rupees for tubectomy.*

Both the plantation and the worker had ample pecuniary motive to prevent births, prior to the non-birth incentive scheme. The female tea-pickers are paid a work incentive for each kilogram of tea picked above a minimum of 11 kilograms per day. Although the tea shrubs are picked throughout the year, during the peak season most female workers are able to earn a daily picking incentive over their base salary. In fact, it has been observed that these women tend to space their child-births so that they occur during the non-peak tea season, suggesting that certain traditional methods of contraception must be in use.

In addition to the workers, the employer also stands to lose for each birth. Under the National Plantation Labour Act of 1951 (actually enforced since 1954), the employer is responsible for providing a maternity leave of three months' duration,

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*And thus the tea-pickers are provided a total incentive for sterilization of 130 rupees, more than the relatively high adopter incentive provided in the Ernakulam vasectomy campaigns.

creches, a plantation medical officer, a hospital, etc.* It is estimated that these direct costs average almost 1,500 rupees ($200 U.S.) per birth, ** plus the considerable indirect costs of decreased work productivity of the women due to confinement, nursing, and poorer health.

Thus both the female employees, as well as the tea estates owners, would seem to have adequate financial reason to limit the number of births, and pregnancies, to a minimum. The plantations also have a further motive: They bear a paternalistic, if not legal, responsibility for the welfare of the workers' children. For years the plantations have employed all of the employees' children who desire work. But in recent years, there were too many offspring reaching maturity for the tea plantations to provide such employment. And the young men and women, often with relatively low levels of formal education and no vocational abilities, remained unemployed. This was the social problem that provided impulse to UPASI in 1966 to look for possible solutions to the plantations' population problem.

So the tea estates of South India are in many respects a researcher's dream locale as a site for field experimentation on a non-birth incentive: They are relatively self-contained social units, thus avoiding the likelihood of experimental contamination. The workers and the plantations seemingly have considerable reason to want fewer children; in fact, the plantations can afford to pay the no-baby bonus, without governmental assistance. And being a private organization, UPASI could venture into a non-birth incentive experiment that no government family planning agency would touch. It was this unique set of conditions which led to launching of the UPASI field experiment, the first trial of a non-birth incentive plan by any agency (in July, 1971).

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*Certain of these costs are also provided for an abortion by a worker, thus providing the plantations with an economic motive to prevent pregnancy, as well as birth.

**Ridker (1971) estimated these costs as follows:

1. Maternity benefits, hospital care, etc. during the first year for the mother and child ---------- 160 rupees
2. Food, clothing, education, and medical care for the child, at 100 rupees per year for the first 12 years---------- 1,200 rupees
3. Medical care for the child from 13 to 17 years of age, at 13 rupees per year ---------- 65 rupees

Total------ 1,426 rupees

UPASI and the Plantations' Over-Population Problem

The main organizational sponsor of the no-baby bonus incentive scheme is UPASI, Headquartered at Conoor, in Tamil Nadu State, India. This organization, founded in 1884, functions today mainly (1) as a pressure group to lobby for favorable legislation for the plantation owners, and (2) as a research and extension agency with a purpose of technological diffusion for crop improvement. UPASI operates an office in New Delhi to aid its legislative endeavors, and an agricultural research farm to promote the second. In addition to its strictly agronomic investigations, UPASI has also conducted socio-economic surveys of various types, including studies of the diffusion of agricultural innovations. UPASI is not a marketing agency for its members.

The members of UPASI are the tea, coffee, rubber and cardamon plantations of South India, concentrated in the three states of Tamil Nadu, Mysore, and Kerala. Each plantation pays an annual membership levy on a per acre basis. Although not quite all of the tea estates in South India are UPASI members, the size of the industry that it represents is impressive. There are about 256 tea plantations in the three-state area, employing about 156,000 workers, an average of about 610 employees per plantation. The typical tea estate is large in land size also, averaging about 600 acres (almost one square mile) of tea shrubs.

UPASI is generally reputed to be an important and progressive organization, representing the plantation industry of South India.

The Secretary of UPASI is V.I. Chacko, an innovative and alert manager of the organization. He is widely traveled, well-read, and serves on important committees of state and national government. One of these groups in which Chacko has been a member for several years is the government of India Committee on Labour Welfare. Also a member of this Committee in the late 1960s was Colonel Raina, then Commissioner of Family Planning, and so Chacko was exposed directly to arguments about the role of population in impeding socio-economic development. However,

Chacko became discouraged with the Government of India's approach to family planning; it seemed to him that this mass media plus clinics plus (contraception) incentive type of approach was not reaching enough families to solve India's population problem.

Something more effective was needed. And this was especially so on the South India tea plantations, where a rapid rate of population growth was leading to higher unemployment, a greater welfare load for the plantation owners, etc., as described previously. Various possible solutions were proposed by UPASI committees in the late 1960s. For example, one of the plantation doctors proposed dropping all maternal benefits after the birth of the third child, but this type of disincentive was considered unacceptable because it might unfairly penalize the mother's health. Anyway, it was illegal under the Plantation Labour Act.

Birth of the No-Baby Bonus

So the search for a better solution continued. Dr. Ronald G. Ridker, then a staff economist with the U.S. Agency for International Development in New Delhi, visited the UPASI office in Conoor in December, 1966. He had previously conceived the idea of a retirement bond, perhaps based indirectly on the proposal by Enke (1960). Ridker had recommended it to the Planning Commission of the Government of India as an experiment, but they showed little interest. It was judged too dangerous an idea for the Government of India to sponsor in the mid-1960s. Anyway, at that time the Government of India had high hopes for its family planning program of massive mass media coverage, widespread clinic services for the IUD, and relatively small contraception incentives for adopters and diffusers. It was not until about 1970 that plateaus in the rate of adoption of the IUD (and vasectomy) led to the frustration of unfulfilled expectations with this approach.

Ridker saw that the tea estates were an ideal locale for an experiment on a non-birth incentive in the form of a retirement bond. The tea plantations had

adequate vital statistics records, hospitals with family planning clinics, an economic reason plus a soial conscience concern to limit their employees' births, little migration of workers, and a fairly stable employment record. And best of all, the tea plantations were organized as UPASI, a non-governmental agency that could be convinced to cooperate in a then-daring social experiment.

So Ridker proposed his idea of a no-baby bonus to Chacko in late 1966, suggesting that a monthly payment of 10 rupees ($1.33 U.S.) might provide sufficient motive to the tea-pickers to limit their family size.

Acceptance of the Retirement Bond Incentive Experiment

For the next five years, the proposal held fire. Ridker left India for a position with Resources for the Future in Washington, D.C. Chacko discussed the proposal with UPASI member-plantation owners and managers, and modified it to the extent that the retirement bond proposal was imbedded in a broader plan, the UPASI Comprehensive Labour Welfare Scheme. In addition to the non-birth incentive, this Comprehensive Labour Welfare Scheme included plans for the improvement of the tea-pickers' family health (through sanitation and preventive medicine), nutrition, use of leisure time, adult education, and vocational training of the workers' children. It was hoped that such a broader development plan would facilitate solution of immediate problems like the unemployed youths, while the non-birth incentive system would attack the longer-range problem of over-population on the plantations. Further, the two approaches should be mutually beneficial; for example, improved sanitation could lead to decreased child mortality and indirectly perhaps to desires for fewer births in order to ensure a surviving son. Likewise, fewer children per family reduces the long-range need for vocational training and the other services that were provided by the Scheme.

One important change was effectuated in Ridker's proposal: The montly incentive payment was changed from 10 rupees to 5 rupees.

In 1970-1971, Chacko began trying to convince five tea plantations lying near the UPASI headquarters at Conoor, to cooperate in the Comprehensive Labour Welfare Scheme. These tea estates were geographically handy, and access to them and to their constituent divisions was facilitated by adequate roads. They were (evidently) not selected on the basis of their representativeness of all UPASI tea plantations.

First the managers of the five estates were approached, and then the corporation owners. One of the chief selling points used by Chacko was the rather substantial costs to the plantation of each woman employee's birth, estimated by Ridker at almost 1,500 rupees. Most of the managers and owners were surprised to realize the size of this cost per birth. The expected cost to the plantation of the births-prevented retirement bond for the work life of a female employee was a roughly comparable amount, and it might prevent several births. Hence the no-baby bonus plan offered the plantations an opportunity to save considerable costs. So the plantation owners has a profit motive for their sponsorship of the non-birth incentive.

Five plantations, all lying within about 35 miles of Conoor, agreed to the Scheme. This was considered a sufficient number for the experiment. However, labor difficulties (evidently not connected with the Scheme) developed on two of the more distant plantations, and they were dropped from the experiment, leaving the three experimental plantations of Parkside, BenGorm, and Glendale. All are within a few miles of Conoor, facilitating the activities involved in conducting the experimental treatment.

The Population Division of U.S. AID in New Delhi agreed to provide funds (1) for operating a Motivation Unit for the UPASI Comprehensive Labour Welfare Scheme, and (2) for an evaluation study of the births-prevented incentive by an external research agency. The Motivation Unit consists of a sociologist, M.S. Cherian, and a medical doctor with special interest in family planning, Dr. Mrs. Vijaya Rahamathullah. The Unit is responsible (1) for conducting benchmark and follow-up

surveys of the female employees who are enrolled, (2) for promoting enrollment in the incentive plan, and (3) for organizing the socio-economic development program for the estates' workers called for in the UPASI Comprehensive Labour Welfare Scheme. Thus, the Motivation Unit has both a research and an action function, carried out by essentially the same individuals.

Originally, Motivation Unit funds were budgeted by U.S. AID for field workers (called "motivators") to contact plantation workers about the scheme, but this budget item was later cut. There are plans, however, to add a staff of such motivators once the scheme expands to include plantations in six additional districts (as is explained shortly).

The costs of the incentive experiment are provided as follows:

1. Each plantation pays the monthly incentive of 5 rupees per worker into a savings account as a retirement bond.
2. U.S. AID covers the expenses of the Motivation Unit of UPASI, which carries out the enrollment activities, plus certain of the non-incentive treatment work, plus certain research functions.
3. U.S. AID will provide funds for an eventual evaluation of the retirement bond incentive.

The UPASI Retirement Bond

The essential idea of the retirement bond incentive is to reward a tea estates employee for limiting the number of births (and abortions) by providing funds for retirement purposes, that would otherwise be obtained by the employee from her children when they reach maturity. Thus the incentive plan seeks to capitalize on one of the important motives in India for having large families: To ensure future provision of retirement benefits for the parents. The incentive payments are thus a surragote for the retirement advantages to the parent of a large family.

While the basic idea of non-birth incentives traces to Enke (1960) and other economists writing in the early 1960s, Ridker (1969) formulated the specific proposal for a retirement bond, and later applied it to the particular case of the tea estates employees (Ridker, 1971).*

All married women workers on the three experimental tea estates between ages 17** and 40 were eligible to enroll in the incentive plan, and thereafter to receive a monthly deposit of 5 rupees ($ 0.67 U.S.) in their retirement savings accounts. A total of 721 of the 1,241 female employees on these experimental tea estates was considered eligible for the incentive plan (Table 5).

The forfeiture procedures*** are as follows:

1. Birth of a third child, spaced more than three years since the second child, causes forfeiture of 50 rupees (10 months of payments at 5 rupees per month) from the account. If the third child is spaced less than three years since the second child, the forfeiture is 100 rupees.
2. Birth of a fourth child causes forfeiture of 250 rupees.
3. Birth of a fifth child causes forfeiture of the total savings account, and disqualification from the incentive scheme.
4. Abortions are treated as equivalent to births for the purposes of forfeiture.

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*Although the forfeiture rules suggested by Ridker are somewhat different than those actually implemented: He recommended loss of one year of future payments for pregnancy with a third child, and the loss of a future year's payments plus forfeiture of about four years of savings for pregnancies after the third child.

**The minimum age was selected because most of the female tea-pickers marry at age 17 or 18.

***A basic notion underlying these forfeiture rules is to help the plantation's costs due to a birth. Thus, the non-birth incentive plan tends to "guarantee" the plantation that unexpected costs will not arise from excessive fertility on the part of the female employees; about the same costs arise either (1) from the incentive payments, or (2) from providing welfare benefits to the worker's children that are born after the second child.

Table 5. Enrollment in the Non-Birth Incentive Plan by the Tea Estates Female Employees in India.*

Tea Estate	Total Number of Workers	Total Number of Female Workers	Total Number of Female Workers Eligible for the Incentive	Total Number of Eligible Female Workers Enrolled	Percentage Enrolling of Those Eligible
Parkside Estate	695	416	224	169	75 %
BenGorm Estate	524	298	166	146	88 %
Glendale Estate	961	527	331	178	54 %
Total	2,180	1,241	721	493	68 %

*As of September 1, 1971.

Minimum enrollment in the plan is for five years. If a female worker dies after five years of enrollment, her savings are awarded to her survivors. Otherwise, the savings account pays all savings plus interest in one lump sum on the woman's 45th birthday.

A worker who marries at the age of 17 and has two children or less earns a total of about 2,000 rupees ($ 267 U.S.) at her retirement, computed as 20 years of payments at 5 rupees per month, plus 5 per cent interest on her savings. This cash pay-off is a very large sum to a tea-picker whose typical family income is only about 2,400 rupees per year. The idea of savings accounts is an innovation to the tea estates workers, who are very present-oriented and usually in debt.

The specifics of the retirement bond scheme were worked out in discussions by UPASI officials with plantation officials over the period from 1966, when Ridker proposed the idea, to mid-1971, when it was implemented. Although relatively little behavioral science research seems to have been done to provide a knowledge base for the incentive plan, its design was founded on the close personal knowledge about tea estates workers by UPASI, and plantation, officials.

Implementing the Retirement Bond Incentive System

The UPASI Motivation Unit was staffed in April-May, 1971, and immediately began an enrollment campaign among the 721 plantation workers eligible for the incentive plan. The main promotion method used was an oral presentation about the scheme to work groups of about 20 to 30 tea-pickers. The workers were already accustomed to incentive pay for their daily picking, and this experience helped them to understand the nature of the family planning incentive. Greatest difficulties were encountered in explaining the rules of forfeiture to the workers, and some misunderstandings still existed on this point for several months after enrollment.

An intensive discussion of the incentive scheme among the workers followed the initial presentation by Cherian and Rahamathullah of the UPASI Motivation Unit. About 60 per cent of the 721 eligible workers were enrolled by September 1, 1971, three months after the scheme was launched. This proportion of enrollment varied from 68 per cent on BenGorm Estate to 50 per cent on Glendale Estate (Table 5).

The procedure for enrollment was relatively simple and informal: The worker just told her supervisor that she wanted to be enrolled, and her name was added to an enrollment list. Ridker (1971) originally suggested that it was unnecessary for the workers to enroll; they could simply be unilaterally put on the scheme. However, the UPASI Motivation Unit decided that the psychological commitment of enrollment might have some effect in discouraging further births (than two). For the first six months of the experiment, the workers were not given their savings account passbooks because it was assumed that this act would have greater significance when more funds had accumulated in the account. However, it is also likely that possession of their passbooks would make the abstract idea of the monthly incentive seem more real, and thus more valuable to the worker, and might act to increase the influence of the incentive on fertility decisions.

No data are available on the characteristics of the 68 per cent of the eligible women who enrolled versus the 32 per cent who did not. It is likely that women with larger parity expectations were less likely to enroll. This also suggests one of the future problems to be faced in evaluating the incentive's effects: One should know what the women's fertility expectations were before the incentive was offered, in order to determine how many births the incentive actually prevented. For instance, if a tea worker expected to have five children before the experiment began, and then actually had only three, we might infer that the incentive helped prevent two births. But if she only wanted three children originally, and has three, the incentive has not changed her behavior. So benchmark data on fertility expectations,

and on other variables, are essential to properly evaluate the incentive's effects.

A further problem to be faced in the conduct of the experiment is how to accurately detect pregnancy. Although called a "no-baby bonus", the experimental treatment is actually a non-pregnancy bonus, because either birth or abortion are penalized equally under the rules of forfeiture. Obviously a pregnancy is much more difficult to detect than a birth.

However, the female tea-pickers are very closely supervised in their daily work (in the small gangs of 20 to 30 workers), and the conductors (work supervisors) might be able to report worker pregnancies, at least after several months of pregnancy. Prior to the beginning of the experiment, the workers were required to have an abortion certified by a government hospital or by a plantation doctor, in order to secure benefits under the Plantation Labour Act. But under the experimental conditions, the worker is rewarded for non-abortion, rather than abortion, and so she is motivated to conceal this condition.

The UPASI Program as an Experiment

When judged against the strict standards of a sound experiment, the UPASI study does not score very well. First, there is no control group. So any decrease in the number of pregnancies among the enrolled workers cannot be evaluated precisely, as part of the decrease may be due to other factors than the treatment. This problem may not be as serious as it might first seem, however, because the tea plantations are quite isolated from external influences, like the government's family planning program. Further, it might be possible, even at this late date, to constitute a sort of control group by comparing the vital statistics data for the three experimental tea estates with other selected tea estates. Or it might be possible to compare the future pregnancy and birth rates of the workers on the three estates, with a similar age-specific group of workers on the same three estates in the past (using vital statistics data).

Probably more serious as an experimental defect is the fact that the experimental treatment is mixed; the non-birth incentive is imbedded within a package of other benefits (adult education, preventive health, etc.) for the workers in the UPASI Comprehensive Labour Welfare Scheme. This packaging makes the incentive more attractive to the workers than just the non-birth incentive alone, and we cannot determine how many of the tea-pickers enrolled (and continue in the plan) to obtain the incentive alone. Thus the incentive treatment is confounded with the worker welfare treatment. In the future expansion of the UPASI experiment to six additional districts in 1972, it is planned to separate these two treatments by offering (1) both in two districts, (2) only the non-birth incentive in two districts, and (3) only the non-incentive welfare benefits in the two remaining districts.

We have already mentioned the lack of a benchmark survey in the three tea estates, which precludes computing difference scores (between benchmark and following surveys) on the dependent variables. As a result, it will be necessary to make many assumptions about the enrolled workers before the experiment began, such as that all expected the same number of children.

Also mentioned previously in this section is the fact that the staff of the UPASI Motivation Unit are serving in some respects as both (1) the program officials, as in their informational and persuasive activities to enroll workers in the plan, and (2) the researchers, responsible for assessing the impact of their efforts. There are plans to involve an external agency in the final evaluation of the non-birth incentive, but it is already too late for them to conduct a benchmark survey.

Lastly, the exact measures of the incentives' ultimate effects have not yet been specified. Possible measures might be the number of enrolled women who have three, four, and five (or more) children (or pregnancies), thus forfeiting various amounts of their incentive savings. But for these figures to be meaningful, one

would need to also know how many such births (or pregnancies) would have occurred without the incentive being offered. For instance, it is believed by UPASI officials that none of the 493 enrolled women workers became pregnant in the first six months of the experiment, although this result has not been reliably documented. This result is very impressive, of course, but it would be more meaningful if we knew how many pregnancies would have occurred without an incentive, such as among a comparable sample of women in a control group.

Among 60 female employees in one of the plantation districts, eight tubectomies have been performed recently for women with only one living child. If this decision is due to the non-birth incentive, it suggests there may be misunderstandings among the enrolled women about the exact nature of the forfeiture provisions. So we see the importance of fully understanding the process of behavior change induced by the treatment, even while the experiment is underway. Fortunately, the UPASI Motivation Unit has rather close contact with the workers on the three plantations and can observe and study such "process"-type data.

The UPASI experiment also illustrates the need to keep a close watch on the unintended, as well as the expected, consequences of the experimental treatment. For instance, there is much conjecture about how the final retirement payment will be spent. Will the considerable funds, available at age 45, be invested by the typical employee in buying a small shop or other business? Or will it be quickly squandered to purchase liquor or other pleasures? To this extent, the retirement bond experiment is also a type of field-test for a novel policy alternative, requiring that the incentive's designers must continuously obtain feedback as to its consequences, and repeatedly tinker with the nature of the treatment. This is good for development of a prototypic policy. It is bad for research experimentation. For one cannot obtain precise data about the effects of an incentive treatment that is undergoing alteration while it is being studied.

The UPASI Program as a Demonstration

We have just discussed the several possible shortcomings of the no-birth bonus scheme as a field experiment; now we look at its role as a demonstration of a new incentive policy. As a demonstration, the UPASI incentive program has been quite successful.

1. Other business firms in India have come to Coonoor to observe the experiment, and to learn about the nature of the non-birth incentive. In spite of this interest, none have yet adopted the no-baby bonus idea, although several are waiting until the incentive's effects are more fully ascertained.
2. A government official in the Malaysian Ministry of Labour and Manpower, Dr. A.T. Rajah, has discussed the incentive program with Mr. Chacko at an ILO conference in Geneva, and a retirement bond proposal has been developed in Malaysia.
3. As mentioned in a previous section of the present report, the government of India's Ministry of Health and Family Planning awarded a grant of about $ 150,000 (U.S.) to UPASI in December, 1971 in order to extend the scope of the no-baby bonus scheme to the six districts in South India where plantation agriculture is concentrated.

   These districts incorporate about 50 to 60 per cent of all plantation workers in the three South Indian states of Tamil Nadu, Kerala, and Mysore. In comparison, the three experimental plantations in the current UPASI project only include about 3 per cent of the plantation workers in Nilgiris District. So the grant from the government of India allows for an expansion of the present study by a magnitude of 100 to 200 times! It will thus be transformed from an incentive experiment into a pilot program.
4. Lastly, the tea estates retirement bond project has had an indirect effect

in encouraging the initiation of the educational bond experiment in Taiwan. The Chinese study-designers did not travel to South India to observe the UPASI project, but they read and followed Ridker's (1969 and 1971) articles, and undoubtedly they were encouraged to know that a parallel experiment was already underway in South India.

Chapter 4

TAIWAN EDUCATIONAL BOND EXPERIMENT*

This section of the present report chronicles how the Taiwan educational bond "experiment" was launched in 1971. This study is noteworthy because:

1. It was the first non-birth incentive launched with the implicit permission of a national government, if not its wholehearted support.
2. It has already had an international demonstration effect on the interest in non-birth incentives by other Asian governments, especially the Philippines.

In many respects Taiwan is an ideal setting for a non-birth incentive experiment: It has reputedly excellent vital statistics records, several years' previous experience with a national family planning campaign (so rates of knowledge about family planning are relatively high), and widely available family planning services.

The Prior Situation

One might expect that a country's policy-makers would tend to adopt family planning incentives (especially non-birth incentives) after disappointment with more strictly voluntarist approaches. The educational bond scheme began in Taiwan, however, in the face of a generally successful national family planning program. The crude birth rate had declined from a 1952 peak of 50 to about 27 per thousand population in 1971, and the national family planning program took

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*The following section draws upon the main published description of the experiment (Finnigan and Sun, 1972), and personal interviews with: (1) S.M. Keeny, Resident Representative for East Asia, Population Council; (2) George P. Cernada, Taiwan Resident Advisor, Population Council; (3) Dr. Tom H. Sun, Director, Taiwan Population Studies Center, Taichung; and (4) Oliver D. Finnigan, formerly Population Council Field Associate in Taiwan, and now Population Research Officer for the U.S. Agency for International Development, Manila.

credit for part of this drop. Government contraceptive services had reached almost half of all married couples in Taiwan, and the rate of adoption of the IUD (the main family planning method in Taiwan) has not shown the disastrous plateaus characteristic of most other Asian countries (although the number of insertions was down slightly to 140,000 in 1971 from a previous high of 143,000 in 1970).

Nevertheless, Taiwan's population policy-makers fear that the birth rate may soon cease to fall, and may even begin to rise. Large numbers of young women are entering the reproductive period, due to a baby boom in the early 1950s. Further, national surveys show that most younger married women have not yet adopted family planning methods. Worse, those surveys also show that the small family norm has not caught on in Taiwan. In spite of communication campaigns espousing two-child families, an island-wide survey in 1970 showed that no change had occurred in parents' conceptions of the ideal number of children. The average remained at about four.

So while the past performance of the Taiwan family planning program is encouraging, there is ample reason for government officials to seek new approaches through which to promote the small family norm, especially among younger families. Thus in 1970-71 the Taiwan officials considered various research and program approaches to their impending population problem.

Vast expenditures were ruled out. The Taiwan program receives a relatively modest budget allocation from the national government, plus a small annual contribution (mostly for research) from the Population Council. Other international agencies are unable or unwilling to assist the Taiwan program.

Natural History of an Incentive Proposal

Four research proposals, each dealing with approaches to secure adoption of contraception by the "hard-core" of young parents, were developed by the research section of the Committee on Family Planning of the Taiwan Provincial Health Department (the official government family planning agency in Taiwan), with the help of the Population Council advisors to the Taiwan program. One of these proposals was an early version of what later became the Taiwan non-birth incentive scheme. In this early stage, the proposal called for a cash incentive, rather than the "in kind" incentive of a secondary school education for two children, which was later tested.

The proposal was submitted to the Population Council headquarters office in New York in late 1970 and, after some discussion, approved in the amount of $40,000.

During 1970-71 the research design was subjected to considerable debate and refinement, both in Taichung and at the University of Michigan, where Professor Ron Freedman (an advisor to the Taiwan family planning program) and some of his colleagues reviewed the incentive design. Important changes were made.

Originally, the research proposal specified that the experiment would be carried out in four rural townships in Taiwan. This was cut down to one township. Further, the earlier plan provided for two different levels of payment (each thus constituting an experimental treatment); this approach was dropped in favor of a single level of payment. Nevertheless, there was much discussion, and evidently some ambivalence, about the ideal level of incentive that would be high enough to attract interested couples, and maintain their participation in the incentive scheme over the years, but low enough to be relatively efficient

(and thus to provide a treatment that would be practical for widespread adoption by the government of Taiwan, if the experiment were successful).

David Finnigan, Population Council Field Associate in Taiwan (and a replacement during 1970-71 for George Cernada, the Resident Advisor, who was completing his Ph.D. at the University of California at Berkeley), was responsible for the idea of paying the incentive as an educational bond. Finnigan acknowledges the influence on his thinking of the Ridker (1969) retirement bond proposal for the South India tea estates.

Focus on an Educational Bond

An experiment must necessarily be based on a considerable accumulation of previous knowledge about one's experimental subjects, the treatments, and the type of human behavior that one seeks to change. This research knowledge is essential in providing the basis for structuring the design of the experiment.

In the case of the Taiwan educational bond experiment, prior knowledge gained from research was used at several points.

1. First, Taiwan's family planning program is probably more research-minded, and especially more experiment-minded, than any other national program. Part of this orientation stems from a relatively long history of family planning experiments, dating from the classic Taichung Communication Study of 1962 (Freedman and Takeshita, 1969). This prior research conditioning helped clear the way for consideration of a non-birth incentive experiment in Taiwan, and may have helped develop some methodological expertise in field experimental design on the part of Taiwanese researchers.

2. As we have shown, survey researchers had alerted the Taiwan population policy-makers to the potential danger of the hard-core non-adopters (young

married couples) who had not accepted the small family norm, nor family planning methods, and who were increasing sharply in numbers in the early 1970s.

3. Previous research had also highlighted why Chinese families wished to have many children, with implications for an educational bond incentive. A 1969 survey in Taiwan showed that 62 per cent of the male respondents expected to live with their children in old age. Because a daughter leaves her parental family to live with her husband's extended family, there is strong preference for bearing sons. Chinese couples expect their sons to succeed financially through gaining education. Although only 16 per cent of adult men have attended high school or college (neither of which is provided free by the government), 67 per cent expect one or more of their children to finish college! And most parents expect to bear a heavy financial burden in order to provide a high school and/or a college education for their children. The choice of an educational bond as a non-birth incentive in Taiwan was based directly on previous behavioral research. "Parents see the road to old age security to be through well-educated children..." (Finnigan and Sun, 1972). The total incentive that can be earned by a family in the experiment is sufficient to provide schooling costs for two children through senior high school (in Taiwan, education through the ninth grade is free).

What are the advantages of an educational bond in Taiwan?

1. It is perceived by parents as more valuable per unit of economic cost than most alternatives. As we have just shown, education of children is highly desired by Chinese parents, as a means of providing for their eventual retirement. Thus the incentive payments for children's educational costs are, in a sense, a type of retirement bond. When almost 900 Taiwanese married women were asked to

rank five principle reasons for saving, education of children topped such alternatives as for an emergency, business, purchases, or old age.

2. It aids the acceptance of the incentive plan by government leaders, who value education themselves, and who realize that their people also share this value. Public officials in Taiwan probably would have more objections to other types of incentive pay-offs, such as payments in cash.

3. It allows a type of program control over the use of incentive funds that cannot be attained with an "in cash" incentive payment. For instance, there is some concern in the South India tea estates scheme that the "retirement bond" payment will be "squandered" when it is paid in one lump sum when the worker turns 45 years of age.

Gaining Approval of the Experiment

An early step in gaining approval of the educational bond experiment consisted of discussions with officials of the Committee on Family Planning of the Taiwan Provincial Health Department. These leaders are strongly research-minded, and many have received graduate degrees in demography and sociology at the University of Michigan. The details of the experiment, as we have shown previously, were worked out jointly by these Taiwanese officials, and the Population Council Advisors in Taichung, with some assistance from Dr. Ronald Freedman and his colleagues at the University of Michigan.

As the experimental design was finalized, the Taiwan Provincial Commissioner of Health was informed of the scheme, in his capacity as Executive Secretary of the Planned Parenthood Association of China (PPAC), through which the funds are channeled from the Population Council. The Board of Directors of the PPAC approved the proposal, accepting the funds from the Population Council. It is

important to note that the Commissioner signed the agreement in his private role of Executive Secretary of the PPAC, not in his governmental role as Commissioner. So the national (provincial) government of Taiwan was not approached directly for approval of the no-baby incentive, although it was indirectly informed.

However, at the county, township, and village level, government leaders were asked for approval of the educational bond experiment. The government chief of Changhua County was asked for his cooperation, and responded enthusiastically. He selected Hua Tan Township as somewhat typical of his county. The Township Administrator and the 18 village administrators and the 18 elected village chiefs in the Township then agreed to cooperate in the experiment. Interestingly, none of the county, township, or village officials seem to have questioned whether their national leaders had approved the proposal, perhaps because it was presented to them at a meeting by the Executive Secretary of the PPAC, who is also the chief of the government family planning program.

Payment and Forfeiture Provisions

The educational bond experiment offers an annual deposit in a savings account for each year of a 10 to 14 year period that a married couple does not exceed two living children (unlike the India tea estates project, abortion is not penalized).

1. If a third child is born, the value of the savings account is reduced by half.

2. If a fourth child is born, the savings account is cancelled.

3. If the couple is divorced, the savings account is cancelled.

4. Couples who already have three children receive a half-sized savings account for 5 to 10 years at a higher rate of payment, which is cancelled if a

fourth child is born.

5. Children born to second wives or concubines are not counted.

Only 9 per cent of the eligible couples in the experimental township have saved in recent years on a regular basis, and 64 per cent have never saved at all. So the idea of a savings account in a bank, and of saving money, is an innovation to the enrolled couples.

The savings account is initiated with a deposit of $25.00 U.S. for couples with less than three children, and $35.00 U.S. for three-child families (Table 6). Annual payments are gradually increased so as to provide an increased deterrant to an additional birth.* The savings earn interest at the current rate of 9.5 per cent annually, which is added to the account. The savings can be withdrawn at a different number of years, as shown in Table 7, so that a maximum value of $304.60 (U.S.) can be earned by parents with two children or less, who wait for 14 years. Payment is in the form of a book of cashier's checks which are payable for educational expenses in public high schools or colleges. If an enrolled couple has no children capable of entering high school or college, the cashier's checks are transferable to anyone else that the couple designates.

Each September, one member of the enrolled couple must report to the township office, present his or her identification card, and sign a statement listing all living children by name. This statement is checked against the family's household registration document in the township office, and the appropriate amount is deposited in the couple's savings account, with interest. If fraud is detected, the account is cancelled.

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*This geometric increase in incentive payments during the first several years is intended to encourage continuance; such geometric increase is not found in the India tea estates scheme.

Table 6. Deposits for Couples Enrolled in the Taiwan Educational Bond Experiment.

Year	Amount of Annual Deposit (in U.S. Dollars)		Year	Amount of Annual Deposit (in U.S. Dollars)
	None, One, or Two Children	Third Child Is Born		Three Children
0	$ 25.00	$ 12.50	0	$ 35.00
1	5.00	2.50	1	7.50
2	5.00	2.50	2	7.50
3	10.00	5.00	3	10.00
4	10.00	5.00	4	10.00
5	15.00	7.50	5	12.50
6	15.00	7.50	Total	$ 82.50
7	20.00	10.00		
8	20.00	10.00		
9	25.00	12.50		
10	25.00	12.50		
Total	$ 175.00	$ 87.50		

Table 7. Withdrawal of Savings for Couples Enrolled in the Taiwan Educational Bond Experiment.*

Year	Amount of Withdrawal (in U.S. Dollars)		Year	Amount of Withdrawal (in U.S. Dollars)
	None, One, or Two Children	Third Child Is Born		Three Children
10	$ 267.50	$ 133.75	6	$ 133.75
11	292.96	146.48	7	146.48
12	320.80	160.40	8	160.40
13	351.24	175.62	9	175.62
14	384.60	192.30	10	192.30

*All savings accounts currently earn 9.5 per cent annual interest.

The government cooperative bank maintains the savings accounts. This bank is located in the county seat town, and a bank representative is sent each September to the township office to update the savings books, which are provided to each of the enrolled couples. Fraud by officials is discouraged by handling the funds through a bank. Also, the clients' credibility in the incentive payment procedures is increased by channeling them through a bank, a respected institution in Taiwan.

The $ 38,000* provided by the Population Council through the PPAC is entirely deposited with this bank, and this capital, plus the 9.5 per cent interest it earns, is sufficient to cover the expected incentive payments for at least ten years.

Determining Eligibility for the Incentive

The experimental locale, Hua Tan Township in Changhua County, has a total population of about 35,000. There are 1,477 eligible women listed in the Township register, who are married, less than 30 years old, and with three or fewer children.

As Figure 4 shows, 374 of these women were no longer living in the Township as the benchmark survey in June, 1971 showed. Here is evidence that township registers in Taiwan are far from up-to-date, and that there may be an equivalent number of eligible women missed by the experiment because they are un-registered in-migrants to the township. About 65 per cent of the 1,477 eligible women listed in the township register, 961 women, were finally judged eligible for the educational bond scheme after screening in the benchmark survey.

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*The additional $ 2,000 in the original $ 40,000 grant is used by the PPAC for administrative costs.

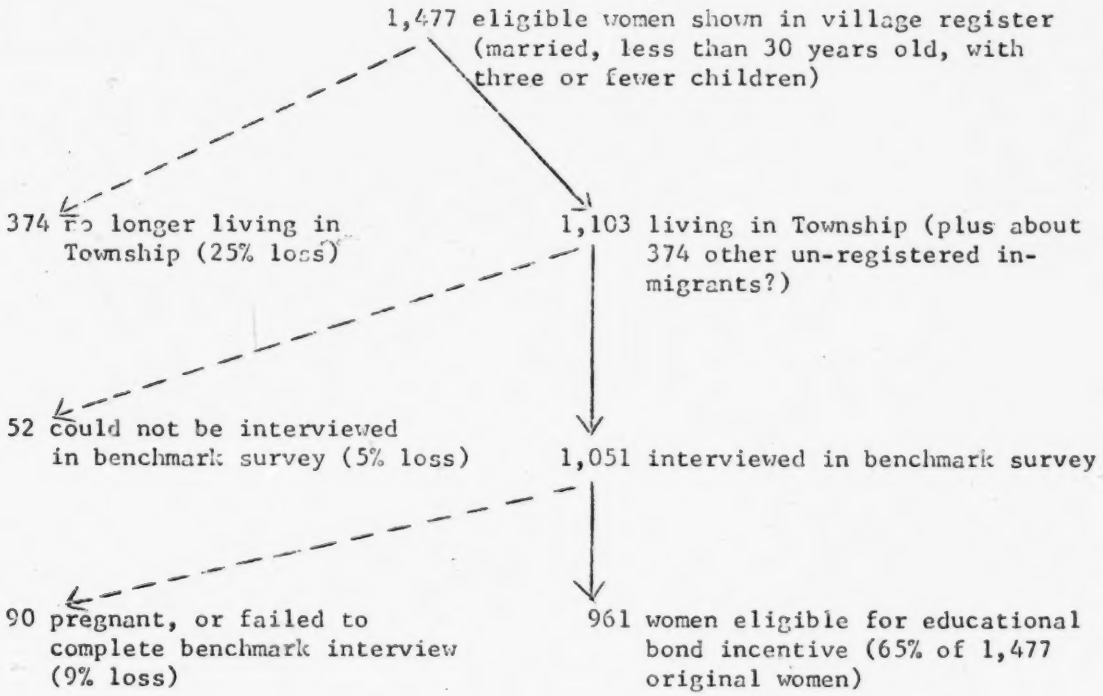
1,477 eligible women shown in village register (married, less than 30 years old, with three or fewer children)
374 no longer living in Township (25% loss)
1,103 living in Township (plus about 374 other un-registered in-migrants?)
52 could not be interviewed in benchmark survey (5% loss)
1,051 interviewed in benchmark survey
90 pregnant, or failed to complete benchmark interview (9% loss)
961 women eligible for educational bond incentive (65% of 1,477 original women)

Figure 4. The Benchmark Survey Helped Screen the Women Eligible for the Taiwan Educational Bond Incentive.

Gaining Enrollment in the Incentive Plan

The eligible women in the Township were invited to 10 separate village meetings, each chaired by the village leader and attended by provincial and county family planning staff, who explained the education bond incentive system. Included in the invitation to each eligible woman was a colorful flyer promoting the educational bond. The women were advised that they had nothing to lose by enrollment, and that they could withdraw at any time. Further, they were informed that they could only enroll during September, 1971.

Figure 5 shows in diagrammatic form how various promotional activities were utilized to eventually enroll about 76 per cent (727) of the 961 eligible women in the Township by October 1, 1971. This proportion of initial acceptance of the scheme suggests that the level of incentive payments may have been set at about the correct level. If only 10 per cent had signed up, one could surmise that the payments were too low. If 100 per cent had immediately agreed to participate, the level of payments would seem to be too high in the sense of efficient use of the total incentive monies.

The initial acceptance by the Taiwanese women, however, does not necessarily predict that they will stay in the scheme (by not having further children) in future years. Perhaps the continuing year-by-year payments are too low to maintain adherence to the non-birth requirement. Or perhaps future inflation will reduce the perceived value of the annual payments and accumulated savings (this inflationary pressure will partly be off-set by the likely rise in interest rates, from the present 9.5 per cent, that would accompany inflation). Or the government of Taiwan might decide to provide free secondary education to all children (the educational bond could then be applied to college costs).

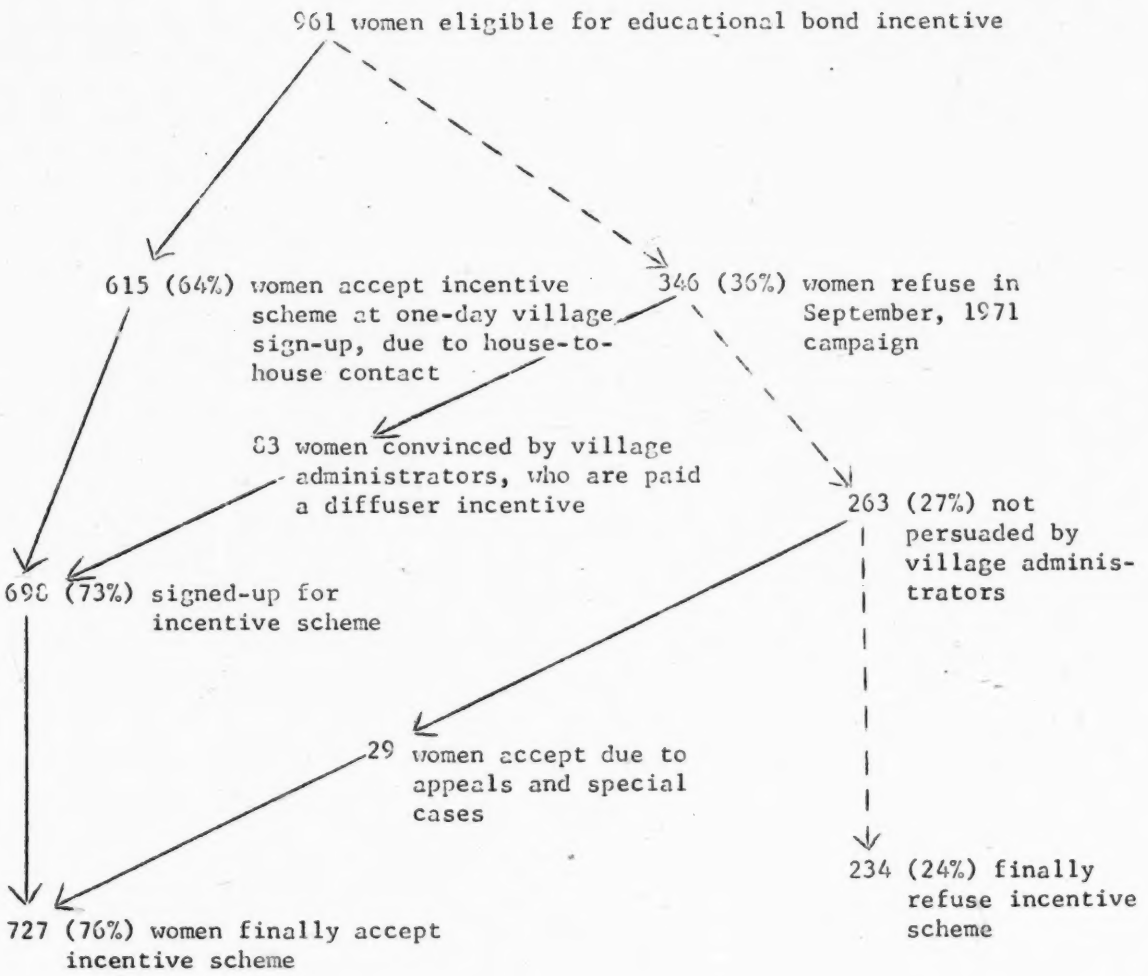
961 women eligible for educational bond incentive
615 (64%) women accept incentive scheme at one-day village sign-up, due to house-to-house contact
346 (36%) women refuse in September, 1971 campaign
83 women convinced by village administrators, who are paid a diffuser incentive
263 (27%) not persuaded by village administrators
698 (73%) signed-up for incentive scheme
29 women accept due to appeals and special cases
234 (24%) finally refuse incentive scheme
727 (76%) women finally accept incentive scheme

Figure 5. About Three-Fourths of the Eligible Women Accepted the Taiwan Educational Bond Scheme.

Generally, the acceptors of the educational bond scheme did not differ much from the non-acceptors on such socio-economic variables as parental education, income, and level of living. Women were less likely to enroll if they had no living sons, indicating the Chinese desire to keep trying until they have a son.

The Educational Bond Study as an Experiment

The Taiwan investigation can be criticized on several counts as an experiment, although none of these points really detracts from its potential contribution as a field-test and demonstration. We can only suggest aspects of the study design which might have been planned differently had the main purpose been to obtain research information about the effects of a non-birth incentive.

First, there is essentially no control group, which could enable a comparison with the experimental treatment's effects so as to remove the effects of all extraneous variables (like those of the usual national family planning program). The Taiwan investigators propose to use a national KAP survey completed in October, 1971 as a type of control group, but this sample is not very comparable to the experimental township. However, it might be possible to match participants with non-participants (in the treatment) on a limited number of characteristics.*

The county (Changhua) was chosen in part for its proximity to Taichung (about 20 miles), as well as the expected willingness of its administrator to cooperate with the experiment. This administrator then chose Hua Tan Township as somewhat typical of the townships in his county. Thus the selection procedures were judgmental, rather than random.

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*Which, of course, in turn causes the matched non-participants to be untypical of the total national sample.

Further, there is a potential problem of possible contamination of the experimental township due to recent publicity. Its identity is well-known, and in fact has been publicized through newspaper articles in Taiwan. The investigators, of course, attempt to prevent any other special family planning activities from being conducted in Hua Tan Township, and to guard against an unusual number of outside visitors from traveling to the Township.* The problem is one faced by most field experiments: Either there is danger of contamination through public interest in the experiment, and the accompanying "Hawthorne effect,"** or else the experiment suffers as a demonstration.

The real costs of the experimental treatment may not be fully indicated by just the grant of $ 40,000 from the Population Council to the PPAC. Cost of the promotional efforts by PPAC officials and other leaders in gaining enrollment in the incentive plan should be estimated, printing costs for the promotional flyer and other forms, plus possible bank charges for handling the incentive payments, personal counseling of enrolled women about contraception (in December, 1971), etc. should be estimated and accounted for, so that the efficiency of the treatment can later be computed.

The immediate, and ultimate, dependent variables should be specified for the experiment to ensure gathering of benchmark as well as follow-up data on them. Implicitly, the major dependent variables seem to be:

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*As one means of doing so, the investigators have produced a 5 to 10 minute 8 mm. film about the Township and the experiment that might be shown to visitors in lieu of a trip to the area.

**So-called because of the major, but unexpected, consequences of research observation of workers in the Hawthorne Western Electric plant in a classic study of human relations in industry. Since this study, social scientists have referred to the consequences due to being studied as the Hawthorne effect.

Independent Variable	Dependent Variables: Immediate	Facilitating	Ultimate
Non-Birth Educational Bond Incentive	Acceptance of Incentive Plan 1. Enrollment 2. Continued participation	Adoption of Births-Preventing Methods 1. Contraceptive methods (IUD, pills, and sterilization) 2. Abortion	Non-births (or births-prevented) 1. Compared to previous expectations as to number of children.

We have previously pointed out that enrolment of eligible women in the Township was 76 per cent, indicating that the level of incentive payments may have been at about the optimum level.

In mid-December, 1971, after the experiment had run for two and a half months, 438 enrolled women were interviewed who had not been practicing family planning in April-May, 1971, when the benchmark survey was conducted. The number of current-users of family planning methods had increased from 19 per cent to 31 per cent during the eight months, and part of this change presumably was due to the non-birth incentive offered in September, 1971.

Further, 64 per cent of the 438 women said they would accept a free sterilization, mostly after having two or three children. At present, sterilization costs about $ 25.00 (U.S.) in Taiwan and is illegal, but can be secured. Efforts are being made by the PPAC to allow sterilization in the experimental township.

If this attempt is unsuccessful, there are likely to be unwanted pregnancies in the Township (due to non-use of contraceptives, or to less-than-completely-effective use), and the bond will act as a pressure for abortion.

Plans for the Taiwan experiment call for an evaluation of the adoption of births-preventing methods in 1973, after a year of the incentive plan, and for a measure of the more ultimate dependent variable (births-prevented) in 1975.*

*In addition to these more quantitative evaluations of the incentive's effects, observation of the process of changed behavior in the Township is also underway by the investigators. Miss S.C. Lin from the Taichung research center attends the village leaders' weekly meeting at the township office, in order to maintain a liaison with the experimental township.

About 462 (64 per cent) of the enrolled women said in the benchmark survey that they want to have more children than the educational bond scheme allows, and we would think their actual fertility (and expected family size) should change most as a result of the incentive's effects.

But even if the educational bond is 100 per cent effective on the birth decisions of these 462 women, and approximately 462 (perhaps somewhat more) births are prevented in future years, this would be a fairly modest demographic effect in a township of 35,000 people. However, as an experiment, the Taiwan educational bond scheme may provide us with important knowledge about non-birth incentives. Already the Taiwan scheme offers important lessons about how to design and establish an innovative family planning incentive policy.

The Taiwan Study as a Demonstration

Whatever its strengths or weaknesses as a research experiment, the Taiwan study has served an important function as a demonstration of a non-birth incentive. This effect in diffusing the idea of an incentive experiment to other Asian nations is especially important because of Taiwan's centrality in the international communication network of family planning officials. Large numbers of such leaders come to Taiwan for courses at the Chinese Center for International Training in Family Planning, Taichung; many other officials from neighboring Asian countries travel to Taiwan to visit the family planning program. During 1971, about 1,000 foreigners traveled to Taichung for these purposes. And almost all now learn about the educational bond experiment.

Visits to the Taiwan study have had a definite influence on family planning officials in the Philippines and in Thailand, as we detail later in this report.

Further, the Taiwan study could play an even stronger role as an international

demonstration if an organized study tour of selected officials from other Asian nations were to come to Taichung to observe, and to discuss possible application of the incentive experiment in their own countries.

Chapter 5

RETIREMENT BOND INCENTIVE PROPOSAL IN MALAYSIA*

The Malaysian family planning program began operation in 1967, with a goal of reducing the population growth rate from 3 per cent to 2 per cent by 1980. More immediately, the program seeks to achieve 450,000 adopters of pills and IUDs by 1972; at the end of 1969, only about 100,000 adopters had been recruited, and the rate of adoption has not increased sharply since then. Pill adopters constitute about 90 per cent of the total, and rates of discontinuance have been a problem, as in other Asian countries. Further, the family planning program has not done well in rural areas.

All of these factors have encouraged Malaysian officials to look for possible approaches to motivating larger numbers of adopters. A non-birth incentive plan has been proposed for Malaysia, and is currently being considered by government officials.

In this chapter, we shall present the details of this proposal, after further consideration of the family planning program in Malaysia, the context into which the proposed incentive must fit.

Family Planning in Malaysia

The Malaysian family planning program is organized under the National Family Planning Board (NFPB), a quasi-governmental coordinating agency whose

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*The following section is based on interviews with Dr. Subbiah, Director of Field Operations, and Mr. Hashim Yunus, Head of the Information Division, both of the National Family Planning Board of Malaysia; and with Dr. J. Gilbert Hardee, Ford Foundation specialist on population; and on the proposal by Ronald G. Ridker and Robert J. Muscat, "Family Welfare and Fertility in Malaysia: A Proposal," Washington, D.C., U.S. Agency for International Development, August, 1971. It must be pointed out that the statements in the present chapter are tentative, as they are based primarily on the Ridker-Muscat proposal, rather than on discussions with Dr. Ridker and Dr. Muscat.

Director-General is Dr. Ariffin. The NFPB works through various private organizations and government ministries, especially Health, in conduct of the program; however, the NFPB has its own full-time employees at the local and the provincial level. Family planning field workers are not allowed to make home visits to recruit adopters (they can only hold group meetings to which interested women are invited). However, public health field workers are allowed to include family planning in their discussions with clients in home visits, and since a recent decision to more closely integrate public health personnel with family planning staff, this type of client contact may lead to more adoption-decisions for family planning.

As mentioned previously, rates of family planning adoption have been more satisfactory in urban areas, but disappointing in the rural countryside. One reason is the lack of adequate clinic coverage of villages; another reason may be the ethnic differences between rural and urban populations in Malaysia. There is a higher population of Malaysian citizens of Chinese descent in urban areas, and many of these are of relatively higher education and socio-economic status. They are generally more receptive to family planning than are the rural population, who are more likely to be of Malay ethnicity. While the economic elites of Malaysia are of Chinese ethnicity, the Malays maintain political power and are slightly more numerous in the total population.

The NFPB has no incentive policy at present and Malaysian officials express concern for the ethical and "quality" problems sometimes associated with family planning incentives in other Asian countries.

A pilot study is underway by the NFPB on the potential of using kampau bidans (traditional midwives) as family planning field staff. Thirty such mid-

wives are employed (1) as depot-holders for condoms and pills, and (2) as motivators for pill and IUD adopters. If five such adopters are recruited per month, the kampau bidan is paid 30 Malaysian dollars ($ 10.00 U.S.). NFPB officials were careful not to set up the reward system on a piece-rate incentive system. Significantly, the midwives are trained for three days in how to persuade women to adopt the concept of family planning, but not in how to instruct them about various family planning methods, which is the main responsibility of the clinic staff. Thus, the village midwives are placed in a role of a persuader, but not of a teacher. The kampau bidan study is regarded as a pilot program for possible expansion to the national level.

Perhaps the most important research in providing useful information for family planning program decisions is the West Malaysian Fertility Survey, conducted in 1966 by the Population Studies Center at the University of Michigan, and recently published in book form. Nevertheless, the considerable body of past family planning research that must be accumulated to provide a firm knowledge base for designing the details of a non-birth incentive experiment is largely missing in Malaysia (at least to the extent that it is present in Taiwan, for example). Further, as already pointed out, Malaysia does not have the past experience with contraception incentives found in many other Asian nations.

The Retirement Bond Proposal

The Malaysia retirement bond incentive was proposed by Dr. Robert J. Muscat, an economist with the U.S. Agency for International Development in Washington, D.C., in collaboration with Dr. Ronald G. Ridker, presently at Resources for the Future, Washington, D.C. Ridker had previously proposed the South India tea estates retirement bond, and this scheme had considerable influence, as we

showed in the previous chapter, on the Taiwan educational bond study. The India proposal was even more directly influential on the Malaysia proposal, as we shall show.*

We treat the proposed study in Malaysia relatively briefly (1) because it is still at the proposal stage, and is not yet implemented, and (2) because it is similar in many details to the India tea estates retirement bond, and there is no need for repetition. In fact, the Malaysia proposal is approximately similar to the India plan in regard to (1) eligibility (married fertile women with less than four children), (2) forfeiture rules (a modest penalty for the third child, and discharge from the incentive plan for "too many children"**), (3) the level of payments, (4) the length of time prior to pay-off (at retirement age), and (5) the form of reward (a monthly cash payment for savings, plus interest).

However, there are certain distinctive aspects of the Malaysia proposed plan, as compared to the India tea estates plan.

1. The incentive payments would come from the national government of Malaysia, not from private employers (the tea plantations).

2. Thus, an official government approval of the non-birth scheme is necessary, while it was not in India (nor for the Taiwan educational bond study). Government sanctioning has delayed initiation of the Malaysia proposal to date.

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*Thus, there is a certain degree of similarity in the nature of the non-birth incentives being tested in India and Taiwan, and described in the Malaysia proposal. However, the methodology of testing the effects of these incentives is not at all standardized, so the comparative aspects of the three studies are much diminished.

**"Too many" in the Malaysia proposal is four, while in the UPMSI plan it is five. Here we see evidence that the Malaysia proposal follows the Ridker (1969 and 1971) proposals more closely than the India tea estates forfeiture rules, which were modified from Ridker's original plan.

3. The eligible families for the study include all those living in selected communities, rather than employees of certain firms. In fact, the Malaysia plan is aimed especially at small farmers, fishermen, self-employed small businessmen, etc., who are unlikely to be covered by existing social security or retirement pension plans (such as those provided for government employees, plantation workers, or employees in large businesses).

4. A relatively small incentive is paid annually to each mother when she and her children report to a local health clinic for a general health check-up, in order (1) to encourage better preventive health practice by these families, and (2) to provide an annual check on the number of living children for forfeiture purposes.

5. The proposal is really nation-wide in scope, with provision for a pilot study for about three years to test its feasibility. The pilot study is mainly a demonstration and a field-test for development purposes, rather than an experiment. The social research aspects of the pilot are minimized; it is argued that the costs of social research could thus be saved. Little detail is given in the proposal for how the pilot study is to be conducted, in what areas*, and how the effects of the treatment (incentive) are to be measured, although such detail might be missing in the proposal simply because of its tentative nature.

Seeking Approval of the Proposal

Muscat had prepared a rough draft of the incentive proposal for Malaysia by May, 1971, in collaboration with Ridker. Muscat visited Kuala Lampur for

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*Other than that the basic unit for application of the incentive treatment should be the rural health clinic-shed, usually containing a total population of 10,000 to 20,000 and about 2,000 to 4,000 fertile couples.

several days in June, 1971, to discuss the proposal with Malaysian officials in the Ministry of Finance, the Ministry of Labour and Manpower, the Economic Planning Unit (EPU), the NFPB, etc. One of the justifications for the proposed non-birth incentive was that it could provide a means of reaching the hard-core of non-adopters, who could not be convinced to practice family planning methods through the voluntaristic approaches currently used by the NFPB. The proposal provides detailed predictions of the likely costs and returns, to government, of the retirement bond. Its main selling point is thus on economic grounds to the national government, and on family welfare grounds to individual families.

In addition, a special advantage of the proposal in Malaysia is that it transfers resources from the middle-class urban sector of taxpayers (who are disproportionately of Chinese ethnicity) to the lower-class rural sector of fertile young parents (who are disproportionately of Malay ethnicity).

The Malaysian officials expressed generally favorable interest in the proposal at the time of Muscat's June, 1971 visit, and he returned to Washington, D.C., to revise the proposal with Ridker. The revised proposal dated August, 1971, has since been circulated to Malaysian officials. The U.S. Agency for International Development has offered financial assistance for the pilot study. In late January, 1972, the proposal was believed to be undergoing further study by the EPU, but still had not been approved by the government of Malaysia when the present report was published in May, 1972.

AID does not maintain a country mission in Malaysia, so the funds would presumably be administered through the AID Regional Office in Bangkok, or else through another international granting agency, like the IPPF. If the Malaysia retirement bond proposal is eventually sanctioned, it would constitute the first

non-birth incentive study approved by a national government, and conducted under its auspices. If the approval decision is delayed for several months, it might be possible for the Muscat-Ridker proposal to be supplemented with a more elaborate experimental design for the pilot study, and thus the Malaysian experiment could possibly be included in a multi-country, comparative design.

Chapter 6

TOWARD COMPARATIVE EXPERIMENTS ON INCENTIVES

We have reviewed, in the four preceeding sections of this report, the four main "quasi-experiments" of the second era of research on family planning incentives. In the present section, we shall propose an international project on incentives, to be carried out in three to five Asian nations.

As a first step toward proposing this international study, let us review and compare the four quasi-experiments in order to synthesize useful lessons for future experiments.

Comparison of the Four Quasi-Experiments

The field experiment* is an especially appropriate research design to tell us how things might be, rather than just how they are. Unlike survey research, experiments offer a method to stretch out from the "here and now" of current practice, to extend and test new approaches, to take big leaps in forming new program policies. The "one-shot" survey design usually cannot yield much insight into how practice could be improved if it were done differently.**

The methodological strengths of true field experiments, in comparison to alternative designs, are great. Their weaknesses are less of design than of execution. True experiments combine "the analytic power of hard-headed studies, including laboratory studies, the generalizability of quasi-experimental and

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*A field experiment is defined as an experiment conducted in the field, rather than the laboratory, in which the pre-treatment and post-treatment measurements are taken with surveys.

**Unless it is a survey of a particularly exemplary or highly unusual family planning approach, in which the research design begins to approach an experiment, except there is no benchmark survey nor any control group. An example is the Ernakulam vasectomy campaigns that were analyzed in Chapter 2 of this report. Further, because surveys only gather information from respondents at one datapoint, they are unable to provide much understanding of any process (like diffusion), which obviously occurs over time.

survey research studies, and the closeness to reality of the natural history approach." (Ikeda and others). On the other hand, the true field experiment faces such execution problems as: "The cooperation of many groups of people [especially the agency responsible for the treatments], it demands ingenuity in keeping up with control and experimental subjects through time, and experimental impact may be obscured by currents of 'history' through which all subjects are passing." (Ikeda and others). So there are many difficulties in the execution of "true" field experiments; unless these can be handled satisfactorily, the methodological power of such experiments is a wasted potential.

The field experiment is ideal for research on the effects of family planning incentives. Alternative incentive policies usually have a major effect, one that is important enough to be measurable in a few months or years. Because incentives are paid by an organization, either a government family planning agency or a business concern, it is usually possible for the researcher to control or manipulate them. So he can randomly assign the payment of various types of incentives to treatment areas, and not to control groups. The expected results of incentives, like the number of adoptions of contraceptives, or of births-prevented, are highly quantitative, and hence measurable. The effects of incentives usually occur only to specifiable individuals or families, so an incentive treatment can be beamed at particular targets while others are avoided; in this regard incentives are unlike a mass media campaign or other possible treatments that only reach a broad audience. Lastly, incentives are, by their inherent nature, expressed in monetary terms, as are many of their consequences; this facilitates the assessment not only of the incentives' effectiveness, but also of their efficiency (or cost-effectiveness).

But unless the field experiment is conducted in a methodologically sound manner, it can be a dangerous tool. For the evaluative conclusions that are reached about a new incentive policy alternative will only be as good as the quality of the experiment's conduct.

The four family planning incentive quasi-experiments reviewed in previous sections of the present report can be compared with the various characteristics of a sound experiment.

1. A benchmark survey of the experimental respondents should be conducted so that the dependent variables, like adoption of contraceptive methods, can be measured with "difference scores" (which indicate the benchmark-followup change in behavior due to the treatment, and thus remove the effects of the prior conditions of the respondents). As Table 8 shows, only the Taiwan educational bond study incorporates a benchmark survey. The other three studies must assume that all treatment and control (if present in the design) respondents are equivalent in their family planning and fertility behavior, that all the experimental individuals were equal when the study began.

2. The experimental areas should be randomly selected or assigned to the treatments and control.* If not, it must be assumed that all extraneous factors which might affect the experimental results are negligible. Such random selection or assignment is not evident in any of the four quasi-experiments compared in Table 8.

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*Random assignment implies that the researcher has control over assignment of the treatments, which enables him to assign them randomly. One characteristic of a quasi-experiment is that it is usually a "natural experiment" in which the experimenter opportunistically capitalizes on some ongoing change, and studies its effects. But of course in such natural experiments the investigator cannot manipulate the experimental condition.

Table 6. Comparison of the Four Family Planning Incentive Quasi-Experiments Analyzed in the Present Report.

Characteristics of a Sound Experiment/Field-Test/ Demonstration	Family Planning Quasi-Experiments: Ernakulam Vasectomy Campaigns (India)	UPASI Retirement Bond (India)	Educational Bond (Taiwan)	Retirement Bond Proposal (Malaysia)
1	2	3	4	5
I. As a Research Experiment				
1. Is there a benchmark survey (or does the study have an after-only design)?	No	No	Yes	No
2. Is there random selection (or assignment) of the treatments (and control) to areas?	No	No	No	No
3. Is the treatment (or control) areas' typicality a criterion for selection?	No	No	No*	No
4. Is there a control group to remove the residual effects of the regular family planning program?	No	No	No**	No
5. Are there precautions against the Hawthorne effect?	No	No***	No	No
6. Are there replications of each treatment in several areas?	Yes****	No	No	No
7. Are there multiple treatments?	No	No	No	No

*Not in the selection of the county, but typicality was a criterion in selecting the township within the county.

**Except to the extent that a national KAP survey might provide a type of "control."

***Other than the physical and social isolation of the experimental tea estates.

****In 25 other districts, since the completion of the last Ernakulam campaign in July, 1971, but such replications do not completely follow the original campaign principles.

1	2	3	4	5
II. As a Field-Test				
1. Does the treatment function as a field-test in the development of an alternative incentive policy?	Yes	Perhaps	Perhaps	Perhaps
III. As a Demonstration				
1. Is the "experiment" a demonstration within the country of study, or internationally?	Yes!	Yes	Yes!	-

3. The experimental areas' typicality should be at least one criterion for their selection. Table 8 shows it was not in any of the four quasi-experiments, so such typicality must be assumed. And there is much evidence that the areas are highly untypical.

4. A control group (or groups) should be included in an experiment in order to remove the effect of the ongoing national family planning program, which is otherwise included as an unwanted residual in the treatment's effects. Table 8 shows there are no control groups; thus it is necessary to assume that the effects of the regular family planning program are negligible.

5. Unless special care is taken to maintain a certain degree of secrecy about the identification of the experimental areas, or unless they are extremely isolated, there is danger of the treatment effect being confounded with a "Hawthorne effect." Table 8 shows that it is necessary in the case of the four quasi-experiments to assume that the process of study itself, and the associated consequences of special public interest in the treatment areas, do not cause any effects.

6. A sound experiment has replications; there should be several treatment areas (receiving the same treatment), in order (1) to balance out the effect of any idiosyncratic factors that might be present if only a single treatment area were studied, and (2) to provide a check on within-treatment variance. Table 8 shows there are no such replications in the four quasi-experiments, other than the 25 additional districts in which the Ernakulam vasectomy campaigns are now being conducted.

7. Much greater efficiency of an experiment can be obtained if

multiple treatments are included; only one control group can then provide a comparison with two or more different treatments. Table 6 shows that all four quasi-experiments have a single-treatment design.

In sum, we see that: The four quasi-experiments (1) are conducted with considerable methodological differences among them, and (2) score rather poorly as experiments. This is only a criticism in the sense of how they could have been designed; in fact, they were not really intended to be strictly experiments. The intent of their designers was along the lines (1) of a field-test, intended to further develop an alternate incentive policy to that previously existing, and/or (2) of a demonstration, intended to inform and persuade other individuals of the incentive policy alternative. Table 6 shows that the four quasi-experiments were all, to a greater or lesser degree, field-tests and/or demonstrations. And this triple intent harmed their quality as true experiments.

On the basis of our analysis and critique of the four quasi-experiments planned (the Malaysia proposal), being conducted (in South India and Taiwan), or completed (the Ernakulam vasectomy campaigns), what constructive recommendations can we offer the next round of incentive experiments?

1. Future investigations of the effects of family planning incentives should be conducted as true experiments.
2. Future experiments on incentives should include benchmark and followup surveys, so that difference scores can be computed to measure change in the dependent variables.
3. Future experiments on incentives should be designed with random assignment of treatments and control to study areas (and hence to respondents) so that the effect of all extraneous variables is removed.

4. In future incentive experiments, the treatment and control areas should be selected on the basis of their typicality of the universe (nation, state, province,etc.) they are to represent.*

5. A control group should be included in future incentive experiments, so that the effects of the regular national family planning program can be removed from the treatment's effects.

6. Certain details about the identification of treatment and control areas in future incentives experiments should be unpublicized until the experiment is completed, so as to minimize the Hawthorne effect and other possible types of experimental contamination.

7. Future incentives experiments should include several replications of each treatment and the control, so that the influence of unexpected idiosyncratic factors can be removed or minimized.

8. Future incentives experiments should include multiple treatments so that greater research efficiency can be achieved. As we shall discuss later, the treatments may be (1) two different levels of payment (of the same type of incentive policy), (2) an incentive payment in cash versus "in kind", or (3) two different types of incentive policies, such as a contraception adopter incentive and a non-birth incentive. We feel that the third set of incentive treatments would be the most profitable to investigate.

Experiments, Field-tests, and Demonstrations

The design requirements for field-tests and demonstrations are quite differ-

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*And political and logistical considerations should be kept as relatively unimportant in the selection of experimental areas; in any case they should not compromise or sacrifice the typicality or representativeness of the areas selected.

ent than for experiments, which are intended to scientifically test the effect of a policy alternative (Table 9). Usually the process by which a new policy alternative is put into practice is: Experiment ⟶ Field Test ⟶ Demonstration. That is, the new approach is first evaluated in an experiment in order to determine whether it is relatively more efficient than the existing policy. If the experimental results indicate that the new alternative is promising, it must usually be field-tested to determine whether its results can also be achieved outside of the artificially enriched and controlled environment of the experiment. So the field-test tells us whether the new policy's results, proven in the experiment, can also be obtained in the field setting, where all other variables are not controlled, and where the policy is applied on a massive basis.* The field-test is also an opportunity for further tinkering with the policy alternative, so as to aid its fit to socio-cultural-physical conditions. When the final format for the policy alternative has been developed, a demonstration may be used to spread the idea, so as to facilitate its diffusion and adoption.

But in the case of the four quasi-experiments under analysis, the usual sequential order of Experiment-Field Test-Demonstration is violated. The quasi-experiments seek, at the same time, to be an experiment, a field-test, and a demonstration. As a result, they do not function very well as any of the three. And clearly the first need is for sound experimentation. Until after the experimental results are obtained, there is nothing to field-test or to demonstrate. And by assuming that there is, the quasi-experiments may be doing harm to the

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*Field-testing of incentive policies is especially important, after experimental results have been convincing, because the new incentive may encounter administrative and organizational limitations to its payment on a massive scale (which were not encountered in the smaller-sized field experiment).

Table 9. Design Requirements for Experiments, Field-Tests, and Demonstrations.

Design Characteristics	Experiment	Field-Test	Demonstration
1. Should the treatment be a wide departure from current policy?	Yes	Perhaps	Perhaps
2. Should the investigators continue to develop the incentive policy (treatment) while it is being implemented?	No	Yes	No
3. Should the researchers be organizationally separate from the agency in charge of carrying out the treatment?	Yes	No	No
4. Should the experiment/field-test/ demonstration be publicized while it is underway?	No	Perhaps	Yes
5. Should visitors be allowed or encouraged to visit the experiment/ field-test/demonstration?	No	No	Yes
6. Should the experiment/field-test/ demonstration be conducted on a massive scale?	No	Partly	Yes

rational process of policy improvement. For instance, the India tea estates retirement bond project has evidently already been judged as successful enough for field-testing and demonstration to begin, as evidenced by the government of India's grant to UPASI to expand the project by a magnitude of 180 to 200 times its present size. This decision, taken before the UPASI incentive experiment had run for even six months, was not based on any solid research evidence from the study.

We summarize our present discussion with the recommendation that: Field experiments on family planning incentives are different from either field-tests or demonstrations of such incentives, so they cannot be conducted simultaneously as part of the same design. The research phase of a new non-birth incentive policy requires two or three years, and the field-test phase necessitates another two or three years. Hence, a non-birth incentive experiment must be initiated four to six years before a country should expect to be able to implement its results as a national policy. This is the reason why Asian nations like the Philippines, Indonesia, and Thailand ought to initiate non-birth incentive experiments now,* even though their national family planning programs are currently off to a good start and rates of adoption are moving upward at better-than-expected rates.

If these programs follow a sequence similar to that in other Asian countries, the early increase in the rates of adoption will soon level off and plateau as the most receptive (to family planning) audience is harvested, leaving mainly the hard-core of non-adopters (Figure 6). Unfortunately, many of the receptive adopters of family planning methods in the early stages of a national program are families with older wives and higher parity. So adoption of family planning methods by

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*As should certain African and Latin American nations.

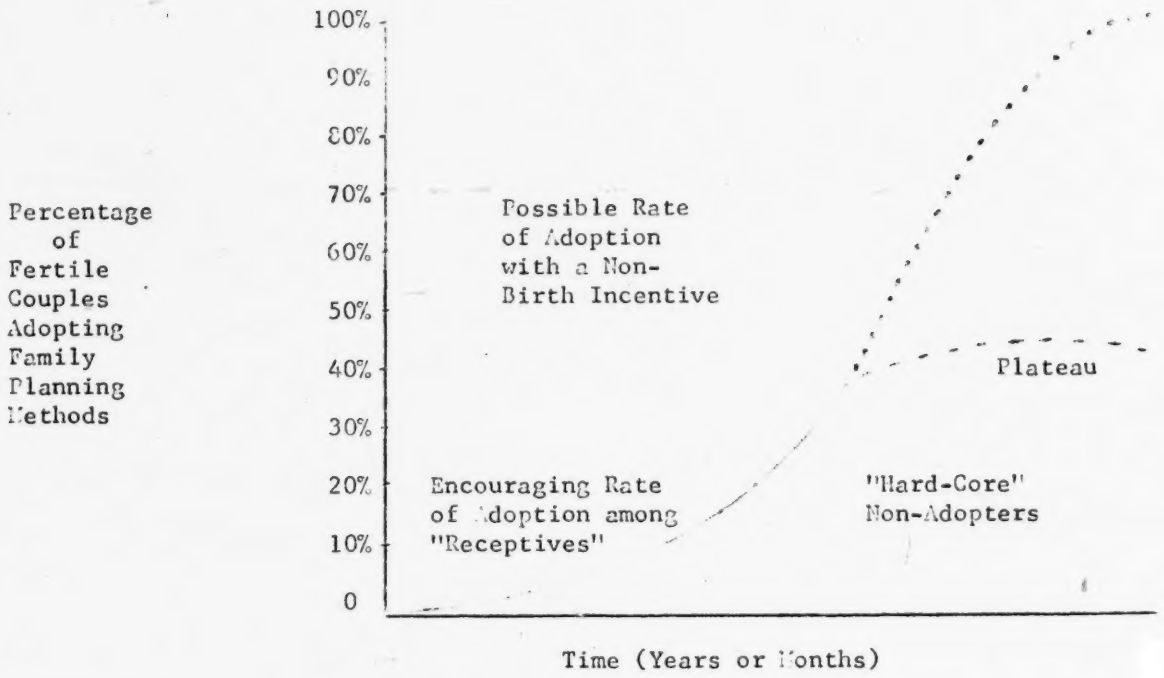

Figure 6. A Non-Birth Incentive May Be Most Effective, and Efficient, as an Approach to the "Hard-Core" Non-Adopters Who Do Not Respond to a More Voluntaristic Approach.

the "receptives" tends to do relatively less to prevent births. And the hard-core who remain are usually characterized by younger age and lower parity parents who have not accepted the small family norm; attracting these parents to family planning is essential for the long-range success of a national program. Later in this report, we shall maintain that a non-birth incentive is one of the most effective, and efficient, approaches to reach the hard-core non-adopters in a national family planning program.

Our present discussion leads to the conclusion that: A non-birth incentive experiment must begin several years prior to the time that it might be adopted as a national policy. Without sufficient lead time, the experiment cannot be allowed to run long enough to determine its full effects, and there will be dangerous pressures to skip the field-test stage.

Cross-Cultural Comparability

In addition to the characteristics of a sound experiment discussed previously, a cross-cultural project must obviously have one further dimension: Comparability. As we pointed out in previous chapters, the India tea estates and the Taiwan study, and the Malaysia proposal, were all directly or indirectly influenced by the Ridker (1969 and 1971) proposal for a retirement bond non-birth incentive. Local adaptations of his general idea for the incentive were made in each country, of course. But there still is a very high degree of cross-cultural similarity in the content of the experimental treatment across the three countries. Without intending to do so, the investigators in the three countries have designed a somewhat comparative series of experiments.

However, the three studies have very different experimental methodologies;

in a strict sense, none of the three are true experiments. The lack of comparative methodology will be their main limitation to producing comparative results. Nonetheless, an attempt at comparison of results across the three studies could eventually yield some useful knowledge, in addition to that provided by each study separately. The lost opportunity is that much more could have been learned from the three studies through a higher degree of standardization in the research procedures.

The recommendation from this experience for further studies is that: Future incentives experiments must have similar research methodologies, as well as test similar (incentive) treatments, if their results are to be maximally comparable.

We should recognize that a cross-cultural approach to a research problem is an "unnatural" state that seldom occurs unless it is planned and made to happen in an organized way. Most research projects are headed by one man, and staffed by his intellectual subordinates. But a cross-cultural approach demands that some degree of one-man autonomy be surrendered for the sake of collaborative relationships, so as to maximize cross-cultural comparability. There must be a decided shift in control from one-man hegemony toward collaborative decision-making.

Cross-national researches are especially unlikely to "just happen." Seldom will Country A approach Country B to invite collaboration on a cross-cultural study. Hence, some degree of international influence is needed in order to initiate a cross-national, comparative study. We see an example of this point in the case of incentives experiments: The Taiwan and the India quasi-experiments were uncoordinated in design; as a result the potential comparability of their future results is rather low.

Further, the unplanned nature of the two quasi-experiments presently underway will undoubtedly continue in the years ahead as future experiments are initiated in Malaysia, in the Philippines, and in other Asian nations. Unless precautionary steps are taken now, by 1974 or 1975 we will have five or six more incentive experiments completed or underway. And none of them will add up to much. Most of them will be conducted with a dubious methodology, so that their results will be subject to question.

Why should we conduct future incentives experiments in a cross-cultural comparative approach? Because much more could be learned from the next wave of field experiments if they were conducted in a coordinated way, so as to achieve comparative results. Also, such an organized multi-national approach is essential if we are to fully profit from the prior experience gained in the Taiwan and India experiments, and if we are to share a relatively scarce resource, the technical know-how of conducting field experiments. So an international approach to family planning incentives experiments facilitates the transfer of past experiences, and of methodological expertise, in the conduct of field experiments.

There is yet another reason for cross-national investigations: The intellectual goal of an international social science is a series of culture-free generalizations about human behavior change. Such strategies of behavior change obviously must be tested in multi-cultural settings if their generality is to be established or claimed. There is also pragmatic profit from such an intellectual goal; consider a family planning official in Country D. He is much more likely to adopt a policy alternative like a non-birth incentive, and justifiably so, if it has been experimentally tested in Country A, B, and C But he is much more doubtful if it has only been studied in Country A.

So far in this report we have implied that cross-cultural comparability is a dichotomous matter of all or nothing. Obviously it is not. Figure 7 illustrates the continuum of comparability, and shows that a higher degree of cross-cultural comparability recuires (1) a higher degree of cross-cultural control over research decisions, and (2) more standardization of research procedures, with (3) little adaptation to idiosyncratic socio-cultural conditions. In the following section of this report, we shall treat the organizational and administrative aspects of a multi-national research project. Here we deal with the technical side of this problem.

Central to the technical aspects of cross-cultural comparability is equivalence. The main purpose of control and standardization in an international project, of course, is to maximize cross-cultural equivalence. If a researcher cannot be reasonably certain that he is testing and measuring the same type of human behavior in both Culture A and in Culture B, he is not conducting cross-cultural, comparative research.

We find it useful to distinguish two types of equivalence:

1. Conceptual equivalence, in which the goal is to standardize the variables that are measured across two or more cultures, while allowing the measurement of the core variables to differ appropriately in each culture.

2. Operational equivalence, in which the goal is to standardize the measurement of core variables across cultures. In survey research this usually means that a core questionnaire is drawn up in one language, and translated into the various languages of study. Even if the translation were perfect (the accuracy of translation can be roughly determined by back-translating the instrument into the original language, and comparing the original with the back-

Degree of Cross-Cultural Comparability

Low	High
1. Low cross-cultural control over research decisions	1. High cross-cultural control over research decisions
2. Much adaptation to idiosyncratic socio-cultural conditions	2. Little adaptation to idiosyncratic socio-cultural conditions
3. Little standardization of research procedures across cultures	3. Much standardization of research procedures across cultures

Figure 7. Continuum of Cross-Cultural Comparability in Behavioral Research.

translation), the meaning of the questions may not be identical in two or more cultures. For instance, the present author once tried to measure the concept of social status among villagers in Brazil, Nigeria, and India. One of the best measures of this concept among Brazilian peasants seemed to be the number of god-children named after each villager. A question about this matter could be translated from Portuguese into Ibo, the language spoken by the Nigerian respondents. But the Nigerian villagers (and their Indian counterparts) do not have god-children. However, other measures of status were appropriate in these two cultures. So cross-cultural operational equivalence was impossible, but conceptual equivalence was accomplished.

We recommend that: Cross-cultural conceptual equivalence is a more appropriate procedure than operational equivalence in comparative incentives experiments, especially when the cultures differ widely.*

Incentive Policies to be Tested

Not only must the survey instruments measure conceptually-equivalent behavior across the several cultures involved in future comparative experiments on incentives, but the incentive treatments themselves must be similar. Exactly what incentive policies should be tested?

A basis for answering this important question is provided in Table 10, where we list the various types of incentives currently being paid in the eight nations included in the present report. We assume that no country would wish to

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*However, operational equivalence is the hoped-for procedural approach in numerous cross-cultural investigations, such as the International Postpartum Project, the International Copper-T Trials, and the World Fertility Survey. Whether such operational equivalence is truely attained or not, of course, is another matter. Operational equivalence may be a somewhat more reasonable hope when the topic of study is a biological event, rather than a type of human behavior that is highly dependent on socio-cultural factors, like incentive-influenced decisions.

Table 10. Family Planning Incentives Presently Paid and Recommended for Experimental Study in Eight Asian Nations.

Country	Types of Family Planning Incentives Presently Being Paid	Type of Incentives Recommended for Experimental Study	Estimated Degree of Interest in a Comparative Experiment
1. India	(1) Adopter contraception incentives (2) Diffuser contraception incentives (3) Adopter non-birth incentives (in the UPASI retirement bond experiment)	Adopter non-birth incentives (in other situations than just tea estates)	Unknown
2. Indonesia	Diffuser contraception incentives	(1) Adopter contraception incentives (2) Adopter non-birth incentives	High Medium
3. Iran	None	(1) Adopter non-birth incentives (2) Adopter contraception incentives (3) Diffuser contraception incentives	High Medium High
4. Korea	(1) Diffuser contraception incentives (2) Adopter contraception incentives	Adopter non-birth incentives	Medium
5. Malaysia	None	Adopter non-birth incentives	High
6. Philippines	None	(1) Adopter non-birth incentives (2) Adopter contraception incentives (3) Diffuser contraception incentives	High Medium Medium
7. Taiwan	(1) Diffuser contraception incentives (2) Adopter non-birth incentives (in the educational bond experiment)	——	——
8. Thailand	Diffuser contraception incentives (only underway in 15 postpartum hospitals)	(1) Adopter non-birth incentives (2) Adopter contraception incentives	High Medium

experiment with an incentive policy already being followed (as it would be included in the control areas), although different levels of payment might be tested. For instance, Indonesia already pays a diffuser incentive of 200 rupiah for each IUD adoption, and it might wish to test a 400 rupiah diffuser incentive in comparison with this current practice.

However, we recommend testing major departures from current incentive policy as a first priority; more can thus be learned from the same amount of research effect. Table 10 shows that one type of incentive policy in which there is a high degree of interest by family planning officials in several countries is a non-birth incentive.

Earlier in this report we reasoned that: A non-birth incentive is one of the most effective, and efficient, approaches to reach the hard-core non-adopters in a national family planning program. We feel that this hypothesis (two hypotheses, actually) should be tested in a cross-national comparative series of "true" experiments. In order to fully evaluate the relative effectiveness, and efficiency, of non-birth incentives in various countries, we need to test them against the most viable alternative. In India, Korea, and Taiwan, the regular national family planning program includes contraception (adopter and diffuser) incentives, and so the comparison of the effects of the non-birth incentive with the control group will provide one test of the central hypothesis. However, because India and Taiwan already have non-birth incentive quasi-experiments underway, they probably would not be interested in joining a multi-national project in which their research approaches would probably have to be replicated.*

In the five other countries visited in the present study, Indonesia, Iran,

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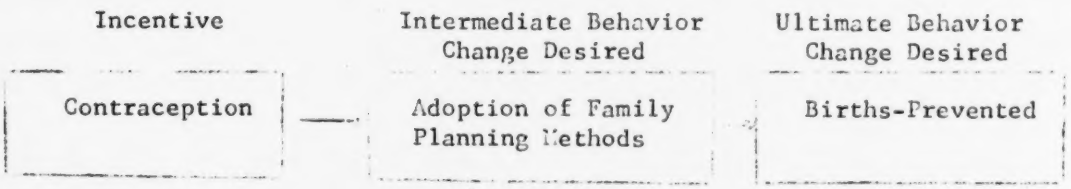
*Although either country might wish to participate in an international project (1) in order to test the effectiveness of a non-birth incentive in another section of the country (in North India, for example), or (2) if it were closer to a "true" experiment.

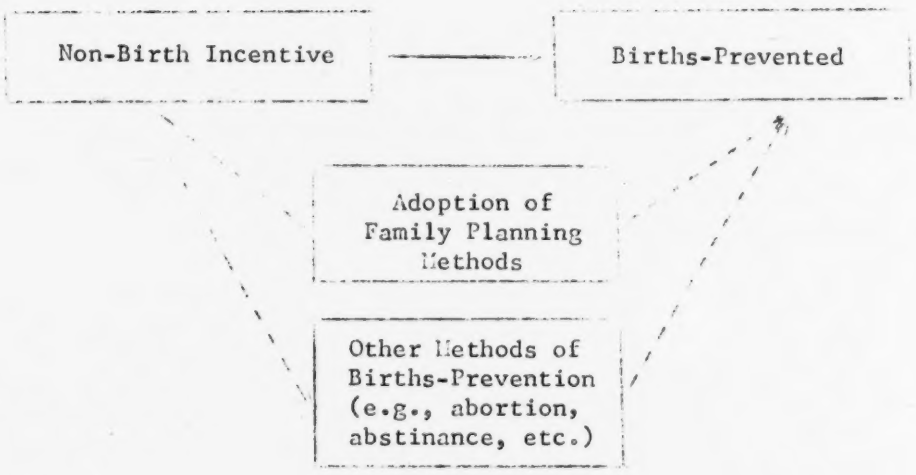
Malaysia, the Philippines, and Thailand, a contraception adopter incentive has not yet been adopted as a national policy, nor tested in a field experiment (and so the control areas will essentially represent no incentives). In several of these nations, especially Indonesia, family planning officials are very interested in the potential of contraception adopter incentives (Table 10). Thus this incentive policy seems to be the logical alternative to a non-birth incentive.

There is yet another reason for including both a contraception and a non-birth incentive policy in the proposed future international project. As we showed in Chapter 1 of the present report, the non-experimental evidence to date shows that contraception adopter incentives result in more adoptions, but each is of lower quality (on the average). Probably one of the best ways to solve the low-quality problem is to pay adopter incentives for non-birth. As Figure 8 illustrates, the ultimate behavior desired (non-birth) is rewarded, rather than the facilitating behavior of adopting a family planning method (as in the case of a contraception incentive). But the disadvantage of a non-birth incentive is that it may cost more per adopter or per birth-prevented (the latter is less likely). Non-birth incentives probably are more effective and efficient with the hard-core non-adopters, while contraception incentives (at least those with relatively modest payments) are possibly more appropriate with the receptive audience who adopt in the relatively early stage of a national family planning program.

In a previous section of this chapter, we showed that a multiple treatment experiment has greater research efficiency than a single treatment design, because only one control group sample is needed in either type of study and it provides a comparison with several treatments in the multi-treatment experiment. A paradigm of the overall experimental design recommended for the future international



I. Contraception Incentives Directly Reward the Desired Intermediate Behavior.


Non-Birth Incentive
Births-Prevented
Adoption of Family Planning Methods
Other Methods of Births-Prevention (e.g., abortion, abstinance, etc.)

II. Non-Birth Incentives Directly Reward the Ultimate Behavior Change Desired.

Direct Influence ——→

Indirect Influence - - →

Figure 8. Paradigms of the Direct and Indirect Influence of Contraception and Non-Birth Incentives.

comparative project is shown in Table 11. This design will provide the following comparisons for the "A" countries;

1. $(T_1 - C)$ = Effect of the contraception adopter incentive.
2. $(T_2 - C)$ = Effect of the non-birth adopter incentive.
3. $(T_2 - C)-(T_1 - C)$ = Degree to which the non-birth adopter incentive has a greater (or lesser) effect than the contraception adopter incentive.*

The cost of obtaining each of these three effects should be estimated, so that cost-effectiveness measures can also be computed for T_1 and T_2, and so that the two treatments' cost-effectiveness can be compared.** No national family planning officials have ever had these kinds of data on which to base their decisions about incentive policies. Such data are, of course, essential for the choice of an optimum incentive.

A corresponding set of comparisons can be made for the "B", and (partially) for the "C", countries in Table 11.

How many countries should be included in the proposed International Project on Incentives? We feel that two is not enough, three is a minimum, five is a maximum, and eight is too many. The basis for the minimum is that three nations' sets of data provide the least reliable indication of cross-national comparability that is acceptable. The basis for the maximum is the pressure (1) of total project cost, and (2) of the increasing complications of inter-country coordination. The three to five nations should be selected so as to maximize the range of socio-

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*The difference between a non-birth incentive and a contraception incentive may be quite small when the latter is paid for a "permanent" family planning method like sterilization.

**Further, it would be ideal to set each incentive treatment at two levels of payment (a smaller and a larger payment) so as to obtain an estimate of the optimum level of incentives that should be paid. However, this issue, in spite of its importance, doubles the complexities of the experimental design, and may have to be sacrificed.

Table 11. Paradigm of the Recommended Experimental Design for Selected Asian Nations.

	C	T_1	T_2
Asian Countries	Control (the Regular National Family Planning Program)	Incentive Treatment #1	Incentive Treatment #2
A. Iran Malaysia Philippines Thailand	No incentives	Contraception adopter incentive	Non-birth adopter incentive
B. Indonesia	Contraception diffuser incentive	Contraception adopter incentive	Non-birth adopter incentive
C. Korea	Contraception adopter and diffuser incentive	Non-birth adopter incentive	———

cultural conditions that they represent.*

We recommended that a control group be included in the experimental design, for reasons that were explained previously. What are the difficulties in incorporating a control group in a field experiment?

1. The cost of data-gathering (in benchmark and follow-up surveys), data-processing, and data-analysis are increased.

2. Ethical problems may be encountered in preventing respondents in the control area from gaining access to the treatment, which is presumed to be beneficial. Their well-being is less than if they received the experimental treatment (something more than the usual national program).

3. Political problems may ensue in that local leaders in the control areas may demand that their people be provided with the treatment also. For example, a government minister may want his home village to be a treatment, not a control; unfortunately, his village may be so progressive as to be untypical for inclusion in the experiment (as either a control or a treatment group, for that matter).

4. Unless the control groups are geographically isolated, or spatially quite removed from the treatment groups, contamination may occur when the control subjects travel to the treatment areas to obtain the treatment, such as a family planning incentive. This movement into the treatment areas to secure the treatment services has happened in several of the family planning communication experiments, including the first such investigation in Taichung, Taiwan (Berelson and Freedman, 1964).

Nevertheless, the scientific advantages of incorporating a control group in

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*In the Appendix we present a brief picture of the national family planning programs in Indonesia, Iran, Korea, the Philippines, and Thailand, with emphasis on aspects relevant for possible participation in the International Project on Incentives. Similar material for the other three nations of study, India, Malaysia, and Taiwan, is incorporated in the previous sections of this report dealing with the four quasi-experiments.

the experimental design more than offset these problems. For with a control, a comparison can be made of the effects of each treatment with the regular national family planning program.

Guidelines for the Conduct of the Incentive Experiments

Within each of the three to five nations of study, the following guidelines are suggested for conduct of the incentive field experiment.*

1. Choose study areas that have adequate delivery systems for family planning services; otherwise, the respondents will just be frustrated in their incentive-induced desire to obtain contraceptive services.

2. Structure the research design so that the host country can realistically adopt and finance the program on a large scale, if the experimental treatment performs satisfactorily. In other words, if the treatments are so artificially enriched that they are unreproducible, the experiment may be successful, but worthless.

3. Share responsibility with a competent research institute in the country that knows local conditions, so the experiment is conducted in a socio-culturally appropriate manner, and so that research institution-building is facilitated.

4. Give the incentive treatment multiple functions, such as to distribute income more equitably, to raise nutritional levels, and to improve public health, as well as to prevent births. Thus, a non-birth incentive treatment should pay off in retirement, educational, or other benefits, that are highly valued by individual families, and that the national government also wants to encourage as development goals. The exact nature of the incentives' form

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*The first four of these guidelines were formulated at the Carolina Population Center Conference on Family Planning Incentives, June 24-25, 1971.

(food, an educational bond, etc.) must be tailored to the social values and desires of the experimental respondents, and to government priorities (Finnigan, 1972).

5. Anticipate ethical problems that may arise during conduct of the experiment, so as to prevent them in advance. One procedure is to ensure that the control group receives the regular national family planning program; thus the control respondents are not being deprived of a benefit they would otherwise receive. A non-birth incentive must be set up so that enrolled women may withdraw at any time, and so that if the treatment must be terminated after so many years, the enrolled families receive all benefits they have earned to that date. Graft and corruption of incentive funds must be guarded against.

6. Provide means for studying the process of behavior change induced by the experimental treatment; the details of this process are often missed if the investigators rely only on a benchmark-followup comparison of the treatment effects. Such an antiseptic approach follows the classical experiment design, and minimizes measurement contamination,* but it does not allow full understanding of how the treatment "works", and proper interpretation of the experimental results is difficult. In order to follow the process of behavior change more fully, close contact with the treatment respondents must be maintained by the investigators, and several followup surveys at different points in time may be needed. This procedure, however, must be followed with care to minimize a Hawthorne effect.

7. Locate the field experiment in the state or province (1) that is most

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*A small, but possibly important, bias may occur in field experiments due to the measurement effect of the benchmark survey, in which, by asking questions about the topic of the treatment being studied, respondents are especially alerted and become interested in the topic. This has less effect in the control groups, where the treatment is not applied, but in the treatment groups the measurement effect may be larger, and thus result in an overestimate of the treatment's effect.

highly populated, or for other reasons is most important for the national family planning program, (2) that is as typical and representative as possible, and (3) that is as convenient as possible to the research headquarters, in order to minimize logistical and transportation problems. Include both rural and urban respondents in the experiment, if possible.

8. Make the clinic-shed the experimental unit in the present study. About five clinic-sheds (each containing 5 to 7 thousand total population) should be randomly assigned to control, and to each of the two treatments, for a total of 15 clinic-sheds. Within each, a random sample of fertile families should be interviewed in the benchmark and followup surveys (Table 12). Ideally, there should be easily discernible boundaries around each clinic-shed, so as to be able to determine which adopters come from outside of the clinic-shed (and hence are one evidence of contamination).

9. Include as dependent variables, measuring the treatments' effects, both (a) "quantity" measures, like the number of adopters, and (b) "quality" measures, like the rate of discontinuance of family planning methods.* These rates should be computed not only for the entire sample of respondents in the control, and in the two treatments, groups, but also could be figured for various sub-audiences, such as women under 30 years of age, illiterates, etc.

10. Promote family planning methods in the experiment that are the primary methods in the national family planning program.

Organization and Administration of a Multi-National Project

Of the two main problems facing a comparative, cross-cultural investigation,

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*A dependent variable like changes in fertility rates is both a quality and quantity indicant of treatments' effects.

Table 12. Diagram of Recommended Experimental Sample Size in Each Country of Study.

Experimental Treatment	Number of Clinic-Sheds	Total Population of Clinic-Sheds	Total Number of Fertile Couples in Clinic-Sheds	Approximate Number of Sample Respondents in Benchmark, and in Followup, Surveys*
Control (Regular National Family Planning Program)	5	25,000 to 35,000	5,000 to 7,000	500 to 700
Treatment #1	5	25,000 to 35,000	5,000 to 7,000	1,000 to 1,400
Treatment #2	5	25,000 to 35,000	5,000 to 7,000	1,000 to 1,400
Total	15	75,000 to 105,000	15,000 to 21,000	2,500 to 3,500

*A sampling rate of 10 percent is used here in the control clinic-sheds, and 20 percent in the treatments clinic-sheds. Both rates are fairly arbitrary and should be adjusted on the basis of specific conditions in the country of study.

the organizational/administrative problems are a more important limiting factor than are such technical problems as achieving a maximum degree of cross-cultural equivalence. What is the best way to organize a comparative, cross-cultural study of family planning incentives?

First, we must recognize that the present era is a period of great interest in multi-national investigations in family planning. Recently completed or presently underway are such massive studies as the International Postpartum Program and the International Copper-T Project, sponsored by the Population Council, and the World Fertility Study, recently initiated with U.S. AID sponsorship. In comparison, during the 1960s some 500 KAP surveys were completed without a single attempt at a comparative, multi-national approach. Undoubtedly, much more could have been learned from the KAP surveys if some of them had been conducted on a comparative basis.

There are several possible models for organizing a multi-national study like the present proposal. Two key elements in multi-national collaborative research activities are (1) funding, and (2) technical expertise. Either or both can be designed to facilitate research comparability. Funds from an international source can be channeled directly to each of the participating nations, or through some type of project coordinating body. This organization can be created just for purposes of coordinating the project, or it can be an existing agency that is willing to take on, or sponsor, this additional function.

One existing organization with strong interests in multi-national studies is the Economic Commission for Asia and the Far East (ECAFE) Population Division, headquartered in Bangkok. ECAFE is the United Nations regional organization for Asia; it includes most of the Asian countries that are UN member states. The

ECAFE Population Division has several multi-national research projects underway; one of these is a four-nation survey study on family planning communication,* underway in the Philippines, India, Iran, and Singapore. ECAFE mainly conducts multi-national studies that are sponsored by UNFPA funds.

Another possible Asian organizing body might be the Inter-Governmental Coordinating Committee for Southeast Asia Regional Cooperation in Family and Population Planning (IGCCSARCFPP), headquartered in Kuala Lumpur under the leadership of Dr. L.F. Sodhy, Secretary-General. This body was created by the Southeast Asian Ministers of Health, and is presently funded by the U.S. AID Regional Economic Development Office in Bangkok. The IGCCSARCFPP functions mainly (1) to exchange information about national family planning programs, and (2) to encourage multi-national research projects. The present author has notified Dr. Sodhy of the possibility of a regional project on family planning incentives, and this opportunity was discussed at a meeting of country representatives in Singapore on February 20-22, 1972, and at a planning meeting on March 6, 1972. The nine number countries do not include India or Korea, although such non-member countries would probably not be excluded on this basis from research participation in a comparative, multi-national project (that were coordinated through the IGCCSARCFPP). One advantage of this body is that it officially represents each of the member nation's family planning programs. At a minimum, the IGCCSARCFPP could provide an organizational framework through which to sponsor the first meeting of country representatives to consider participation in a comparative project.

At the risk of oversimplification, we shall describe two contrasting organi-

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*In which an attempt is being made to study (1) the importance of various communication channels in diffusing family planning ideas to the target audience, (2) the nature of husband-wife communication about family planning innovations, and (3) which family member makes family planning innovation-decisions.

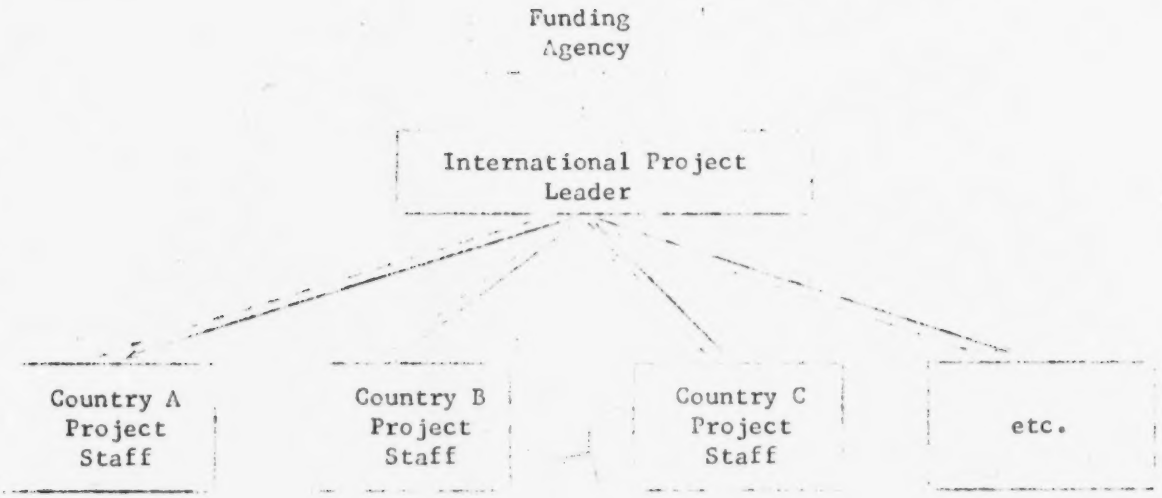
zational models for cross-cultural investigations. The first is the centralized model, in which technical expertise and/or funds are concentrated in one body, and distributed to various country research institutes in an hierarchical manner. The centralized model has probably been the predominant structure in past multinational projects; it may have its main advantage when research funds cannot be obtained separately by each country, and when technical expertise is concentrated in one or a very few individuals (Figure 9). Organizational control is available to maximize a relatively high degree of standardization in research procedures.

The federated model allows for research planning to be carried out in a more collaborative manner (Figure 9). It assumes that the representatives from each nation together possess much of the technical expertise that is needed, and planning meetings provide a means of sharing such research know-how. Some degree of standardization, and perhaps cross-cultural equivalence, is sacrificed in exchange for a higher degree of socio-cultural idiosyncratic appropriateness of research procedures. The overall project leader functions more as a consultant to the various national project staffs, and as a chairman of the international project committee. Funds for the international project may or may not be channelled through the central office of the consultant.

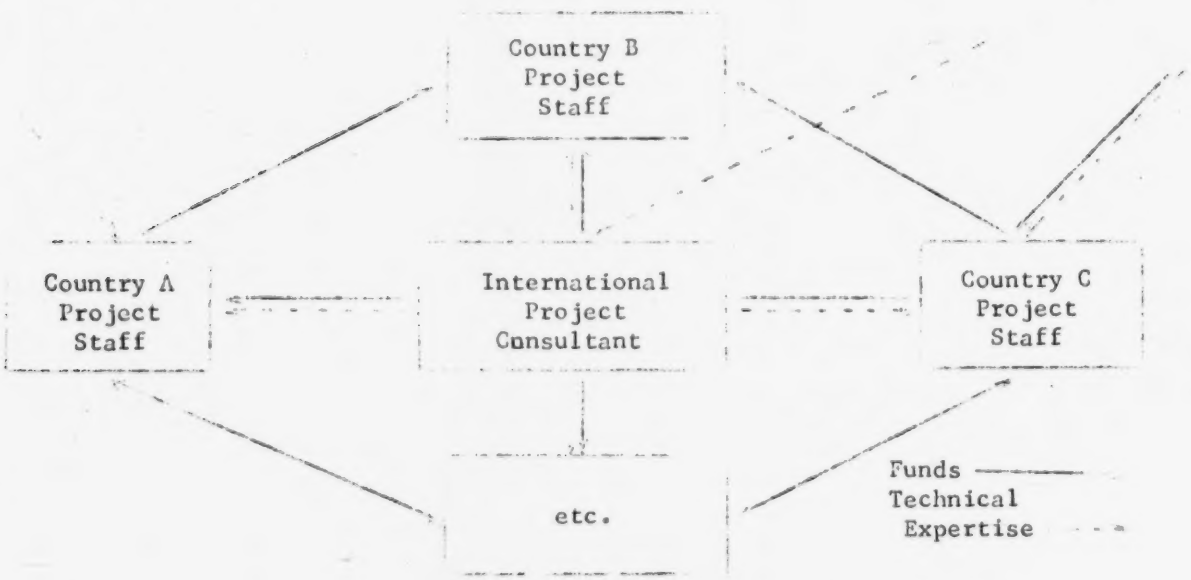
We recommend the federated model of project organization for the International Project on Incentives (IPI). The main reasons are:

1. Two countries, India and Taiwan, have already launched quasi-experiments on non-birth incentives, and their experience should be incorporated in the conduct of the IPI, even though it is obviously too late to re-design these two studies on a truly comparative basis with the others.

2. Three other nations, Malaysia, the Philippines, and Indonesia, have begun



Model I. Centralized Model for Project Organization.



Model II. Federated Model for Project Organization.

Figure 9. Diagram of the Centralized and the Federated Model for Organization of an International Comparative Research Project.

planning incentive experiments with the possible help of external sources of technical expertise and funding.

3. Three other countries, Iran, Thailand, and Korea, who are presently interested in participating in the IPI, possess a relatively high degree of technical expertise and might (or might not) obtain funds from different sources.

In order to facilitate country participation and more standardized operation, we feel the IPI should be funded by a single research sponsor. An acceptable alternative might be joint funding by two sponsors, who agree to cooperate in conduct of the IPI.

We feel that the participation of three Asian countries in the IPI is a minimum, while five nations is probably a maximum. Ideally, the countries selected for participation should provide a wide range of Asian cultures, so as to offer a test of the experimental incentives' effects under a wide scope of socio-cultural conditions.

The immediate future steps toward the IPI should be:

1. A short conference of the various Asian countries that are interested in the IPI, to be held during 1972 at a convenient location like Bangkok, Singapore, or Kuala Lumpur.* Each country should be represented by an official from the national family planning program, and one from the country's research institute (that might conduct the experiment). The India and the Taiwan experiments should be represented, so as to provide a presentation of their experiences to date. The main purpose of this first conference is to discuss possible participation in the IPI, and

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*Sponsorship for this initial conference might be obtained from a variety of possible sources: The Ford Foundation regional office in Bangkok, the USAID Regional Economic Development program headquartered in Bangkok, the IGCCSARCFPP, the Population Council, or other international sources.

discuss its future form.

2. Efforts to obtain (a) the official permission of country governments for participation in the IPI, and (b) funds and technical expertise, as needed.

3. A series of IPI planning conferences to decide on the details of the research process: The types of incentives to be tested, the experimental designs, the core variables for the research instruments for the benchmark and follow-up surveys, and the nature of data-analysis and interpretation. The IPI consultant should ideally travel among the various country projects, but reside at one national research institute, where he would participate most actively in that experiment. The experiment in which the IPI consultant is resident might precede the other experiments by a short time, so that such experience can be most helpful to the other participating nations.

At certain of these IPI planning conferences, it may be important to invite selected consultants to deal with particular problems. For instance, the assistance of an economist may be needed as a consultant (if not otherwise obtainable) in the analysis of the cost-effectiveness of the incentive treatments.

We anticipate that the IPI would be initially planned and funded for a period of about three years, which would allow for a two-year follow-up after the incentive experiments begin. The cost of the incentive payments might be covered by the national governments involved, out of the budgets of their family planning programs. So the needed project funds would perhaps only cover the research costs of the IPI.

REFERENCES

Wajihuddin Ahmed (1971), "Field Structures in Family Planning," Studies in Family Planning, 2(1):6-13.

D. Lee Bawden (1970), "Income Maintenance and the Rural Poor: An Experimental Approach," American Journal of Agricultural Economics, 52:438-441.

Bernard Berelson (1969a), "Where We Stand," in S.J. Behrman and others (eds.), Fertility and Family Planning, Ann Arbor, University of Michigan Press.

Bernard Berelson (1969b), "Beyond Family Planning," Studies in Family Planning, 1(38):1-16.

Bernard Berelson and Ronald Freedman (1964), "A Study in Fertility Control," Scientific American, 210:29-37.

Donald T. Campbell (1968), "Quasi-Experimental Design," in David Sills (ed.), International Encyclopedia of the Social Sciences, New York, Macmillan and Free Press.

Donald T. Campbell (1969), "Reforms As Experiments," American Psychologist, 24:409-429.

Donald T. Campbell (Forthcoming), "Methods for the Experimenting Society," American Psychologist, 27.

Donald T. Campbell and Julian C. Stanley (1966), Experimental and Quasi-Experimental Designs for Research, Chicago, Rand McNally.

Stephon Enke (1960), "The Gains to India from Population Control: Some Money Measures and Incentive Schemes," Review of Economics and Statistics, 42:175-181.

Leon Festinger (1957), A Theory of Cognitive Dissonance, Evanston, Illinois, Row, Peterson.

Oliver D. Finnigan (1972), "Testing Incentive Plans for Moving Beyond Family Planning," Paper presented at the Population Association of America, Toronto.

Oliver D. Finnigan, III, and T.H. Sun (1972), "Planning, Starting, and Operating an Educational Incentives Project," Studies in Family Planning, 3(1):1-7.

Ronald Freedman and John Y. Takeshita (1969), Family Planning in Taiwan: An Experiment in Social Change, Princeton, New Jersey, Princeton University Press.

Godfrey Hochbaum (1958), Public Participation in Medical Screening Programs: A Socio-Psychological Study, Washington, D.C., Public Health Service Publication 572.

Kiyoshi Ikeda and others (1970), "Reforms as Experiments and Experiments as Reforms," Paper presented at the Ohio Valley Sociological Society, Akron.

International Planned Parenthood Federation (No date), Incentive Payments in Family Planning Programmes, London, IPPF, Working Paper 4.

S.M. Keany (1972), "Field Notes on Improving Administration in Family Planning," Unpublished Paper, Taichung, Taiwan, Chinese Center for International Training in Family Planning.

S.M. Keeny and others (1970), "Population and Program Profile," in George P. Cernada (ed.), Taiwan Family Planning Reader: How a Program Works, Taichung, Taiwan, Chinese Center for International Training in Family Planning.

Philip Kotler (1967), Marketing Management: Analysis, Planning, and Control, New York, Prentice-Hall.

S. Krishnakumar (1971), The Story of the Ernakulam Experiment in Family Planning, Trivandrum, India, Government of the State of Kerala, Report.

E. Hyock Kwon and others (1970), "A Study on Social and Demographic Characteristics of Acceptors of Intra-Uterine Contraceptive Device Through Special Incentive Programs," Seoul Journal of Medicine, 11:27-57.

Cesar M. Mercado (1971), "Target Audiences in Family Planning," Paper presented at the IPPF-SEAOR Workshop on Information and Education, Kuala Lumpur, Malaysia.

Guy H. Orcutt and Alice G. Orcutt (1968), "Incentive Experimentation for Income Maintenance Policy Purposes," American Economic Review, 58:754-772.

Helen Parris (1971), Facilitating India's Family Planning Program through Television: A Study of Source Effectiveness, Ph.D. Thesis, Lansing, Michigan State University.

Edward Pohlman (1972), How to Kill Population, Philadelphia, Westminister Press.

Robert Repetto (1969), "India: A Case Study of the Madras Vasectomy Program," Studies in Family Planning, 31:8-16.

Research and Marketing Services (1970), A Study on the Evaluation of the Effectiveness of the Tata Programme for Sterilization, Bombay, Unpublished Report.

Ronald G. Ridker (1969), "Synopsis of a Proposal for a Family Planning Bond," Studies in Family Planning, 1(43):11-16.

Ronald G. Ridker (1971), "Savings Accounts for Family Planning: An Illustration from the Tea Estates of India," Studies in Family Planning, 2(7):150-152.

Everett M. Rogers (1971a), "Incentives in the Diffusion of Family Planning Innovations," Studies in Family Planning, 2(12):241-248.

Everett M. Rogers with the assistance of a Field Study Committee (1971b), A Field Study of Family Planning Incentives and Field Staff in Indonesia, Djakarta, Ford Foundation, Mimeo Report.

Everett M. Rogers (1972), Communication Strategies for Family Planning, Lansing, Michigan State University.

Everett M. Rogers (Forthcoming), "Effects of Incentives on the Diffusion of Innovations: The Case of Family Planning in Asia," in Gerald Zaltman and Philip Kotler (eds.), Perspectives in Social Change, New York, Holt, Rinehart and Winston.

Everett M. Rogers and Dilip K. Bhomik (1971), "Homophily-Heterophily: Relational Concepts for Communication Research," Public Opinion Quarterly, 34:523-538.

Everett M. Rogers and others (1970), Diffusion of Innovations in Brazil, Nigeria, and India, Lansing, Michigan State University, Department of Communication, Diffusion of Innovations Research Report 24.

Everett M. Rogers with F. Floyd Shoemaker (1971), Communication of Innovations: A Cross-Cultural Approach, New York, Free Press of Glencoe.

Irwin Rosenstock (1966), "Why People Use Health Services," Milbank Memorial Food Quarterly, 44:94-127.

Prodipto Roy and others (1968), The Impact of Communication on Rural Development: An Investigation in India and Costa Rica, Paris, Unesco, and Hyderabad, India, National Institute of Community Development.

Wilbur Schramm (1971), Communication in Family Planning, New York, Population Council, Occasional Reports in Population/Family Planning.

Veena Soni (1971), The Ernakulam Camps: An Analysis and Implications for Family Planning in India, New Delhi, Ford Foundation, Mimeo Report.

K. Srinivasan and M. Kachirayan (1969), "Vasectomy Follow-up Study: Findings and Implications," Bulletin of the Gandhigram Institute of Rural Health and Family Planning, 3:12-32.

Harold W. Watts (1969), "Graduated Work Incentives: An Experiment in Negative Taxation," American Economic Review, 59:463-472.

Jae Mo Yang and others (1969), Study on a Method to Improve Simultaneously Vital Statistics and Family Planning Among Maternity Cases, Seoul, Yonsei University, Center for Population and Family Planning, Report.

Appendix

FAMILY PLANNING IN FIVE COUNTRIES WITH IMPLICATIONS FOR INCENTIVE EXPERIMENTS

Indonesia*

Indonesia ranks as the fifth most populous nation in the world today, with a population of about 125 million. Approximately 75 million of these live on Java and Bali, the two most densely-populated islands, where the national family planning program is concentrated.

Early Success

A national family planning policy was announced in 1968, but only within the past year has the program really begun to reach out to most citizens on Java and Bali. A five year goal of achieving 6 million adopters of IUD and pills was announced in 1970, and by early 1972 the program was ahead of the targeted rate of adoption. An original goal of 200,000 adopters had been established for 1971-72, but at mid-year this was jumped to 550,000. Further, the original goal of 550,000 adopters for 1972-73 has been increased sharply to 1 million. Even though the five-year targets were rather arbitrarily set, the fact that these original targets are now being surpassed leads to a feeling of success by family program officials. Stricter measures of program effectiveness, like current-use of contraceptives (which would take into consideration the rates of discontinuance) or a decreased rate of population growth, are not yet available for Java and Bali, but they would probably deflate some of the current optimism if they were.

The national family planning program in Indonesia is coordinated by a

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*This section of the report draws somewhat on Rogers' (1971b) study of the effects of incentives and field workers in Indonesia, and on personal discussions with (1) Dr. Brata Runah, Provincial Family Planning Officer for Bali, (2) Dr. Wasito, Provincial Family Planning Officer for East Java, and Dr. Kartini Soeharto and Dr. Lelond of his provincial staff, (3) Miss Siti Oemijati and Mr. Pudjo Rahardjo, Research and Evaluation Bureau of the BKKBN, (4) Dr. Brooks Ryder, Ford Foundation advisor in family planning, and (5) Dr. Ranganathan and Dr. Robert Repetto of the World Bank.

national body, the BKKBN, and conducted by various government and private agencies, with a primary responsibility for operational activities by the Ministry of Health. Financial assistance and technical advisors to the Indonesian program are currently provided by the U.S. Agency for International Development, the World Bank, the Ford Foundation, and other international agencies. A $ 40 million (U.S.) loan for family planning is being negotiated between the Indonesian government, and the World Bank and the UN Fund for Population Activities. Final arrangements are expected to be concluded by mid-1972; the funds will be administered through the BKKBN. They will be used for the construction of buildings, staff, incentives, research, and other program costs.

Field, Staff and Incentive Policies

One of the current problems of the Indonesian family planning program is clinic under-utilization. In the past, the national program has been strongly clinic-based, medically-oriented, and integrated with the maternal and child health approach (Rogers, 1971b, p.7). Now the Indonesian program is moving from a Clinic Era into a Field Era, with a greater emphasis on diffuser incentives and on field staff contacts with clients. The number of adopters per clinic per month was only 5.2 in 1970, but rose to 14.0 in August, 1971, and perhaps to about 20.0 in January, 1972. An important reason for this rise is due to the addition of full-time field workers to clinic staffs; there were only 140 field workers in 1970, but the number reached about 3,000 (serving 2,000 clinics) by April, 1972. Within three years, the numbers of field workers is to reach 15,000 on Java and Bali; each is responsible for about 1,800 fertile couples (in a total community population of 10,000), a higher ratio than in most other Asian nations.

The main responsibility for client contact in the field is carried by these full-time field workers, supplemented by the efforts of (1) bidans (nurse-midwives), who mainly conduct clinic operations, (2) dukuns (traditional midwives), who are targeted for involvement in family planning field work at the rate of 69,000 by 1976, and (3) various other government officials and community leaders. All of these various types of field staff are currently paid a diffuser incentive of 200 rupiah (≈ 0.50 U.S.) per IUD or pills adopter, although the field workers also receive a base salary of 2,500 rupiah (≈ 6.25 U.S.) a month.

On April 1, 1972, the diffuser incentive for pills was reduced from 200 to 100 rupiah per adopter, while the diffuser incentive for IUD remained at 200 rupiah. The main reasons for this change in incentive policy are (1) a shortage of budgeted funds for incentives, due to the surprising rate of adoption, and (2) a desire by national leaders to encourage the adoption of the IUD, rather than pills.

Further, large expenditures are involved in these diffuser incentives; in 1971-72, if the present national target of 550,000 adopters of the IUD and pills was reached (by the end of the fiscal year on March 31, 1972), considerably over half a million dollars (U.S.) would have been paid as incentives to clinics and field staff.* This figure will rise to over ≈ 1 million (U.S.) in 1972-73.

No adopter incentives are currently paid in Indonesia. In reality small adopter incentives are sometimes awarded in Indonesia by the field staff, who

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*For each adopter achieved, the clinic is paid 500 rupiah by the BKKBN, of which 200 rupiah is passed on to the field staffer responsible for persuading an IUD adopter, and 100 rupiah for each pill adopter. So the 500 rupiah is a kind of "group" diffuser incentive, designed to encourage the entire clinic staff to work together to achieve adopters.

pay the adopter a portion of the diffuser incentive. Frequently this is only 50 to 75 rupiah for transportation of the adopter to the clinic.

Delayed Incentive Payments

A serious difficulty in Indonesia during 1971-72 is the delay in payment of diffuser incentives to field staff. By early 1972, most such payments were made about six months late (after they had been earned) due (1) to the large number of officials' signatures required (one payment form for a diffuser incentive of 500 rupiah, or $ 1.25 U.S., necessitated 13 signatures), (2) to the unexpectedly large volume of incentive forms to be processed, and (3) to the reluctance of the Ministry of Finance to release the funds for payment. We suggest that: Incentives which are paid immediately (after the act they are designed to encourage) have a greater effect than when payment of the same incentive is delayed for several weeks or months.

Why do delayed incentive payments have less effect on human behavior?

1. The delay erodes the faith of individuals in the promises of the government family planning agency.
2. The recipient of the incentive funds loses the interest on them (that he would otherwise earn) during the period of delay.
3. Inflationary trends may lower the buying power of the incentive payments by the time they are received.

Needed Research on Incentives

Here are seven research questions about incentives that need answers in Indonesia:

1. What is the effect of the diffuser incentives (now being paid) on rates of adoption? This is an important question in Indonesia because of the size of

the funds involved, as we showed previously.

2. What is the effect of a delayed payment (for example, of about six months) in diffuser incentives after they are earned? In other words, how much less is an incentive of 200 rupiah worth to an individual if he must wait six months to receive it?

3. What effect will the decrease in diffuser incentives for pills from 200 to 100 rupiah per adopter have on rates of adoption for pills, and for IUD (where the diffuser incentive remains at 200 rupiah)? One answer can be obtained by comparing such rates of adoption before, and after, April 1, 1972, when the change in pill incentives went into effect.

4. What is the ideal mix of salary and incentives for family planning field workers? At present, the typical field worker earns a monthly salary of 2,500 rupiah, plus about 1,000 rupiah, in incentives (at 200 rupiah per adopter for an average of 5 IUD adopters per month). So about 72 per cent of the total monthly income is guaranteed. Should this be more, or less, to maximize field workers performance?

5. What would the effects of an adopter incentive be in terms of rates of adoption, program efficiency (for example, cost per adopter), etc.? Should these adopter incentives be paid in cash or "in kind" (such as rice, cloth, or some other item)?

6. Should this adopter incentive be for contraception or for non-births?*

7. Does the payment of incentives contribute to higher rates of discontinuance for the IUD and pills? In order to obtain a clear answer, one would need a comparison of rates of discontinuance for family planning methods (1) for adopters when adopter and/or diffuser incentives are paid, and (2) for adopters when such

*As this report went to press (in May, 1972), the Pathfinder Fund was considering a proposal to fund a non-birth incentive experiment on the tea-estates of Java.

incentives are not paid. To date, such a comparison has never been made, in Indonesia or elsewhere.

The effect of a contraception adopter incentive is a priority research topic for the Research and Evaluation Bureau of the BKKBN, and their officials are currently designing such an investigation, probably to be conducted on Java, where the national family planning program is concentrated. We urge that such an experiment also include a non-birth adopter incentive.

The Ministry of People's Welfare has expressed interest in experiments on non-birth incentives for family planning. However, there is felt to be relatively little urgency about such an incentive approach, because the current program in Indonesia seems to be fulfilling official expectations for rates of adoption. One justification for conducting such an experiment in the near future in Indonesia is to explore a means to reach the hard-core audience for family planning, a type of knowledge that may be useful in the near future.

Compared to other Asian nations, Indonesia has a smaller body of accumulated research bearing on family planning behavior, and a more limited capacity to conduct such research in the future. What research institutes might be involved in investigations on the effects of incentives?

The leading research center for studying such a problem is the National Institute of Public Health, Surabaja. This Institute contains a Department of Population and Family Planning, headed by Dr. Henry Pardoko, who also serves as Acting Director of the Institute at present. Pardoko conducted the first KAP survey in Indonesia in 1959, and since then has engaged in a series of useful studies dealing with family planning behavior. The Ford Foundation has recognized the National Institute of Public Health for receipt of financial and tech-

nical assistance to promote family planning research.

It is also possible that the BKKBN Research and Evaluation Bureau could directly conduct an incentive experiment through their provincial research officers. However, the Bureau is overworked at present, and so it will be difficult for their staff to devote much attention to conducting an experiment. In any event, the Bureau staff should be involved in advising on the conduct of future incentive experiments in Indonesia.

Iran*

A family planning policy in Iran was announced in 1966, and the program has since been conducted by the Family Planning Division of the Ministry of Health. In spite of a strong policy, the program has been relatively weak. Health services in Iran are inadequate to reach the total population and an important limitation to the rate of adoption of family planning methods has been the lack of contraceptive services. Numbers of clinics and personnel have been inadequate to meet the increasing demand by clients for family planning assistance.

The main family planning methods in Iran are pills, IUD, and condoms, with some emphasis now beginning on male and female sterilization. Pills dominate the program, and the usual problems with discontinuance are encountered in Iran.

A series of field experiments on various family planning communication approaches were conducted in the Province of Isfahan from 1968-70, and extensions of these studies are now underway. The basic quasi-experiment featured the following treatments:

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*The materials in this section were mainly obtained through discussions with Dr. Mehdi Loghmani, Deputy Director of the Health Department for the Province of Isfahan; and Robert Gillespie, Population Council advisor to the Isfahan family planning communication experiment.

1. First, radio programs and spots which were broadcast throughout the Province.
2. Functionaries, such as schoolteachers, agricultural extension workers, literary workers, and other officials, were employed on a part-time basis to recruit adopters of family planning in selected communities in the Province.
3. Field workers, who visited each home three times, were followed by a lady medical doctor on a fourth visit, who offered to dispense oral pills or to insert an IUD at a nearby mobile clinic.

The results of this study suggest the importance of home visits by field workers in persuading clients to adopt. The mass media treatment was effective in creating awareness of family planning; however, a follow-up survey showed that 87 per cent of the population (of about half a million) in Isfahan city learned about the family planning slogan: "Two or three children is better; the loop and pill are safe."

A final report on the results of the Isfahan project has not yet been published, but the findings to date indicate a major impact of the communication treatments. For instance, a 64 per cent increase in rate of adoption of IUD and pills occurred in the Province as a result of the various communication inputs, and this in spite of the limiting effect of inadequate contraceptive services.

The Isfahan quasi-experiment actually consists of a series of experiments, each conducted in a somewhat flexible manner, rather than one formal experiment. For instance, in addition to the treatments just described, mobile teams are now undergoing trial in one section of Isfahan Province. A copper-T (IUD)

trial with modest service fees paid to the doctors is being tried in another area. As a new family planning approach is developed, it is simply added as another appendage to an on-going series of quasi-experiments. In general, the Isfahan project demonstrates a high degree of creative planning.

Another distinctive aspect of the Isfahan study is its use of a great variety of measures of the dependent variable of experimental effects. Various measures come from pre-post KAP surveys; others from service statistics. Yet others are obtained in ingenious ways. Twenty diary-keepers are employed in the experimental areas to record anything they hear about family planning (including negative rumors about family planning methods). A small number of women have been hired to serve as participant observers in evaluating clinic services; each such disguised "plant" goes to a clinic to obtain family planning services, and records what happens to her and the treatment that she receives.

The Isfahan project reminds one in certain ways of its Taiwan counterpart. Program administrators like Dr. Loghmani work in close contact with researchers like Bob Gillespie; in fact, Loghmani is both the chief administrator of the health and the family planning program, and of the research operation. Under such conditions, there are few problems of research utilization. As in Taiwan, both research and program are the responsibility of one individual.

The numerous family planning experiments in Isfahan, conducted along highly creative lines, are also characteristic of Taiwan. Perhaps a major reason for this similarity is that Gillespie worked for the Population Council in Taichung before being assigned to Isfahan.

The Isfahan quasi-experiments are about to be replicated and extended in an adjoining province, Khuzestan, under UNFPA sponsorship. Gillespie played a

key role in planning the Khuzestan project, and will spend part of his time as an advisor to it. Doctors will be paid a service fee for each sterilization, and doctors and nurses' aides will receive a small payment for each IUD insertion. Mobile teams will serve about 50 villages each, supplementing the sales efforts of a local distributor in each village who is paid for each pill cycle she handles. So incentives are a part of the Khuzestan experiment.* Also, about 60 full-time field workers will be employed, paid partly on an incentive basis (﷼ 1.00 U.S. for each IUD adopter they recruit, and ﷼ 2.67 U.S. per sterilization). In addition, a mass media campaign (newspaper and magazine inserts, banners, radio spots and programs, and films) will be launched to promote family planning.

In addition to these research activities, Iran is also one of the four nations participating in the ECAFE project on family planning communication. Dr. Loghmani is director of the Iran sub-project, which will be conducted in Isfahan Province.

The government of Iran has become very interested in communication research on family planning, as a result of the various studies just described, and is especially interested in field experiment approaches. Isfahan would seem to be an ideal location in Iran for possible conduct of a future field experiment on (1) contraception adopter incentives, and (2) non-birth adopter incentives. Neither has been paid to date in Iran, but there is interest in the potential of both. Government officials are field experiment-minded in Iran, and experienced with this approach in Isfahan.

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*Although previously to this study, incentives have not been part of the family planning program in Iran.

Korea*

This nation of about 30 million population was one of the first in Asia to initiate a family planning policy in 1961, which was followed by a nationwide program that began in 1964. This program has generally been judged to be a success to date, in the sense that it has attained an impressive rate of adoption of the IUD, and helped to reduce the rate of population growth. The rate of natural increase decreased from 2.7 per cent in 1964, to 1.9 per cent in 1970, and a further decrease to 1.5 per cent is the population goal for 1975. This demographic change from 1964 to 1970 is largely due to (1) delayed age at marriage, (2) an increasing rate of abortion (which is illegal but widely, and increasingly, practiced), and (3) the spread of family planning methods by the national program.

The heart of the national program is a corps of about 2,300 female field workers, one of whom is assigned to each rural township or urban neighborhood. These field workers make an estimated 2 million home visits each year. In 1971, the program achieved almost 300,000 IUD adopters, 20,000 vasectomy adopters, and around 60,000 acceptors of pills. Rates of discontinuance of IUD and pills have been a problem.

Research on Incentives

There is a tradition of behavioral science research on family planning in Korea, featuring field experimentation on communication approaches. Although incentives are paid to adopters of vasectomy, to field workers (for motivating

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*Much of the material in the following section was gathered through discussions with Dr. Walter B. Watson and George C. Worth, Population Council advisors in Korea; and by interviews with Edward E. Keenan, U.S. AID population advisor in Seoul; with the directors of the Korean research institutes discussed in this section; and with Dr. Kyung Shik Chang, Chief of the Family Planning Section, Ministry of Public Health.

IUD and vasectomy adopters), and to private medical doctors for performing contraceptive services, there has been almost no research on the effects of these contraception incentives.* The total budget for incentive payments in 1971 was:

Doctors	400,000 U.S.
Field Workers	46,000 U.S.
Adopters	43,000 U.S.
Total	489,000 U.S.

The Research and Evaluation Division, Family Planning Center, Korean Insciitute for Public Health, is planning a research study on the effects of field worker's incentives, to be proposed for possible funding by the Population Council. The Chief of this Division also expressed interest in a non-birth incentive experiment. The Korean family planning program is faced with limited funding, and this would affect the government's interest in non-birth incentives (which generally require higher payment per family) or in some other type of relatively higher payment incentive policies.

The main justification for possible future research on non-birth incentives in Korea is similar to that in Taiwan. There is no immediate desperation to achieve more adopters, or to invigorate existing plateaus in rates of adoption (as in some other Asian countries). Rather, the Korean program is currently judged to be a successful one. But this relative success may not continue, although the government's specified demographic goals require that the present downward trend in the rate of population growth must continue. As in Taiwan, the first six years of the nationwide family planning program have largely

*Two exceptions are Kwon and others (1970, who studied the effects of diffuser incentives, and Yang and others (1969), who studied the effects of adopter incentives.

reached the receptive audience of motivated women in the older child-bearing age category.

The more difficult task for the immediate future is to concentrate on the younger, less-motivated parents who have not accepted the small family norm. In this context, a non-birth incentive experiment might provide useful information for designing future population policies.

Research Institutes in Korea

There are four possible Korean research institutes that could conduct an incentives field experiment.

1. Korean Institute for Research in the Behavioral Sciences (KIRBS), IPO Box 3528, Seoul. The Director is Dr. Boom Ho Chung, an able educational psychologist with an interest in the diffusion of innovations. KIRBS has recently completed a large-scale survey research on attitudinal modernity and family planning, sponsored by U.S. AID, on which Dr. James Palmore of the East-West Population Institute was a consultant.* KIRBS is an autonomous research institute that receives some funding from the Korean Ministry of Education.

2. Research and Evaluation Division, Family Planning Center, Korean Institute for Public Health, 115 Nokbun-Dong, Sudaemun-ku, Seoul. The Director is Dr. Tae Ryong Kim, who has a background in public health. The Institute is the research and training arm of the Ministry of Public Health. The Division is responsible for various researches including a series of national fertility surveys. The Population Council advisors in Korea are officed in the Institute, and certain of the Division's research is sponsored by the Population Council. As mentioned previously, Dr. Kim indicated an intention to conduct a future

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*The East-West Population Institute has a contractual relationship with KIRBS through which U.S. AID funds for population-related research are channeled.

investigation of the effects of field worker's incentives.

3. Center for Population and Family Planning, Yonsei University, IPO Box 1010, Seoul. The Director of the Center is Dr. Jae Mo Yang, Professor of Public Health at Yonsei University, and a pioneer in family planning in Korea. The Center is most noted for the Koyang study, a field experiment on various communication approaches to family planning, conducted in a rural country near Seoul from 1962 to 1965. This study, and other investigations since, were sponsored by the Population Council. The Center engages in training graduate students in family planning research from such fields as public health, sociology, economics, etc.

4. Urban Population Studies Center, College of Medicine, Seoul National University, Seoul. The Director is Dr. E-Hyock Kwon. The Center is known for the Songdong-gu Study, a field experiment conducted in 1964-66 in a section of Seoul, and sponsored by the Population Council. Four communication treatments were tested as to their effects over a two year period:

(a) Mass media (radio, pamphlets, newspapers, etc.)

(b) Mass media plus direct mailing.

(c) Mass media plus group meetings.

(d) Mass media plus home visiting by field workers.

Pre-post surveys showed that home visiting was most effective (1) in attracting clients to health stations (clinics), and (2) in achieving adopters. This experiment bears a similarity in its design and treatments to the Taichung. Study in Taiwan, and both Dr. Ronald Freedman and Dr. John Takeshita of the University of Michigan, who conducted the Taichung Study, were advisers to the Songdong-gu Study in the mid-1960s.

Philippines*

The Republic of the Philippines is an island nation of about 40 million population with a population growth rate of over 3.2 per cent, one of the highest in Asia. Compared to other Asian nations, the Philippines was relatively late in adopting a national family planning policy (in 1969).

The population is about 80 per cent Roman Catholic. There is relatively high unemployment, and much of an otherwise encouraging rate of economic growth is eaten up by population increase. In 1968, per capita income was $ 151 (U.S.), although this was unevenly distributed. Over 75 per cent of the adult population is literate, and there is a high value on schooling, with 30 per cent of the national government budget devoted to education (more than any other single government function). Primary education is on an almost-free basis. Vital statistics are very poor.

Family Planning Activities

The Commission on Population (PopCom) was established in 1969 by President Marcos, and is composed of representatives from various population-related private agencies, government bodies, and academic institutions. The PopCom is headed by Dr. Conrado Lorenzo, Executive Secretary, and a small staff. Most family planning program activities are carried out by 14 private and public agencies that are provided with grants from PopCom. Among the more important of these program agencies is (1) the Ministry of Health's Department of Health/

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*The following section is based upon personal interviews with Major Eugene Ocampo, Mrs. Rodriguez (Director of the Communication Section), and Dr. De Guzman (Director of the Motivation Section), all of the Philippine Commission for Population, Manila; Oliver D. Finnigan and Mrs. Pat Williams, of the U.S. AID Division of Health and Public Services, Population Research Section, Manila; Dr. Gloria Feliciano, Dean, Institute for Communication, University of the Philippines, Quezon City, and her faculty; and Dr. Juan Flavier, Director, International Institute for Rural Reconstruction, Salang, Cavite.

Rural Health Units, which employ about 600 field workers, and (2) the Family Planning Organization of the Philippines (FPOP), the IPPF affiliate that operates over 200 family planning clinics.

In addition to these program agencies, there are about 8 to 10 agencies that conduct research activities under PopCom sponsorship. Important among these is the Institute for Population, University of the Philippines, Quezon City, directed by Dr. Mercedes Concepcion.

Funds for the PopCom have come almost entirely from U.S. AID to date; a $ 1.4 million (U.S.) grant was made in 1969, which was increased to $ 5 million in both 1970 and 1971. Modest support has recently been provided by the government of the Philippines, and a $ 3.2 million (U.S.) grant was negotiated in January, 1972 for five years from the UN Fund for Population Activities. So monies for family planning activities, and research, are not in short supply. All funds are channeled to the PopCom through the National Economic Council (NEC), the national planning commission.

The Philippine family planning program is medically-dominated and clinic-oriented. There were about 400 family planning clinics in 1970 (operated by the various agencies with PopCom financial assistance) and 1,000 in January, 1972, a number targeted to increase further to 1,800 in 1973. Each clinic is supposed to have two full-time field workers on its staff; there were about 1,700 such field workers in January, 1972. Each averaged about 20 adopters per month.

The demographic target of the PopCom is to attract 2.7 million fertile couples to adopt family planning methods during 1970-75, an accomplishment that would avert about 500,000 births. In the month of December, 1971, there

were 36,000 adopters; 60 per cent of these used pills, 17 per cent the IUD, and the rest, condoms or the rhythm method.

The Philippine family planning program, by being relatively later on the scene than other Asian programs, could learn much from these other approaches. But Philippine officials insist on cautiously adapting any foreign-successful family planning approach to their own socio-cultural conditions, probably a wise philosophy in terms of the distinctiveness of Philippine culture from other Asian cultures.

Because the PopCom is mainly a coordinating and financing agency, actual family planning activities in the Philippines lack much standardization. For instance, only recently, and after lengthy discussion, were the family planning program agencies able to agree on a core curriculum for the two weeks of training for their field workers. Similarly, somewhat different reward systems for performance are provided by each agency; the Department of Health/Rural Health Units awards 6 pesos (about $ 0.95 U.S.) per adopter to local clinics for the purchase of office air conditioners, fans, drugs, or other supplies. This is a type of (group) diffuser incentive, of course, although it is not officially recognized as such.

Further, each field worker in the Philippines is paid a monthly "salary" of 130 pesos ($ 20.63 U.S.) if she achieves 15 adopters and does 30 follow-up visits to previous adopters. No "incentive" bonus is provided, however, if she accomplishes more than 15 adopters per month, so the payment system seems to act as a kind of ceiling, as well as a floor, on performance.

The Philippine family planning program is mostly woman-oriented. For instance, female methods of contraception (vasectomy is not part of the program

because of an informal agreement with the Catholic Church) are mainly promoted to female clients by female field workers. An implicit assumption of the Philippine program seems to be that family planning decisions are made by wives; however, the PopCom's official policy is that family planning must involve a family decision by both the husband and wife. Some limited research evidence by Mercado (1971) shows that in relatively few cases is the family planning decision made unilaterally by the wife, and while many such decisions are jointly made, the husband often predominates.*

Family planning field workers in the Philippines are relatively low-salaried (at 130 pesos per month), and are recruited from the community in which they will work. They must have a minimum of six years of education, and preferably are satisfied users of family planning methods. The field workers' supervisors are clinic doctors and nurses; no field supervisors are provided by most of the program agencies. The clinic-sheds of the various agencies overlap in certain areas, and an effective means of ironing out the competition for clients by different field workers in these overlapping areas has not yet been achieved.

Incentive Policies

Two proposals were submitted to the Commission on Population in July, 1971 for incentives to medical doctors on the basis of the number of adopters achieved. These proposals were rejected by the PopCom, thus putting the organization on record as opposed to incentives.

However, a diffuser incentive of 2 pesos per adopter was paid to field workers (called "motivators" in the Philippines) until late 1971, when it was

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*More reliable data on who makes family planning innovation-decisions are being gathered in a four-country ECAFE Project; the Philippine phase is conducted by researchers at the Institute for Communication, University of the Philippines.

discontinued because of the immense accounting effort involved in paying such a small amount (0.32 U.S.) to so many individuals.

One of the arguments used against the idea of incentives in the Philippines is the likelihood of graft of the funds. There is a popular saying in the Philippines that "politics is good business", implying that many political leaders become wealthy through illegal means. Justifiably, the PopCom wants to avoid any possibility of a taint on their family planning activities.

Presently, the Commission on Population employs a private auditing firm to check on the reported performance of each of the 14 family planning agencies conducting field activities. Typically, the auditors visit a non-random sample of the agency's family planning clinics, and field check a non-random sample of about 30 reported adopters. So methods are available, and currently being utilized, to prevent widespread graft of family planning funds, although the auditing costs are fairly high. A less sophisticated, and more efficient, means of program control could probably be designed.

Interest in a Non-Birth Incentive Policy

Mrs. Estela P. Sindico, Under Secretary of Social Welfare, visited the Taiwan family planning program in late 1971, where she observed the educational bond incentive experiment. She proposed that a similar educational bond incentive be paid in the Philippines, and her idea was proposed as a law in the National Legislature in early 1972. Significantly, Mrs. Sindico did not seem to propose an experiment, but rather a full-scale national program with an initial payment from the government into a savings account of 200 pesos per month (31.80 U.S.) plus annual payments of a further 200 pesos. Her proposal was given a favorable treatment by Manila newspapers.

Major Ocampo, an official in the PopCom, also visited the Taiwan educational bond experiment, and is presently drafting a proposal for a non-birth study in the Philippines. He attended the Government Affairs Institute's Population Seminar in Washington, D.C., in late 1971, where he discussed the South India tea estates experiment with Dr. Ridker at Resources for the Future. Mr. S. Krishnakumar, District Collector in Ernakulam District, was also a participant in the GAI Seminar, and so Major Ocampo learned about the Ernakulam vasectomy campaigns.

The Philippines seems definitely interested in a non-birth incentive experiment. And there are several competent research institutes that might conduct such an investigation.* At least one field experiment on family planning communication is currently underway in the Philippines.

The IIRR Experiment

The experiment is conducted by the International Institute for Rural Reconstruction (IIRR) in 69 villages in Cavite Province, about 40 miles from Manila. The study is sponsored by the Mellon Foundation, and is directed by Dr. Juan Flavier of IIRR, with some assistance on experimental design from various social scientists at Philippines institutions and at the Population Council. The experiment began in 1971, and will run for about three years. The experimental units are 14 clusters of about four (contiguous and homogeneous) villages each; half are in upland and half are in lowland areas. In addition to two control clusters, four clusters are assigned to each of three communication treatments.

1. Family planning services only, provided by twice-monthly visits of a

*Such as the Institue for Communication, University of the Philippines, that provides graduate-level training and conducts research on informational/motivational aspects of family planning.

mobile team to each village where a temporary clinic is set up.

2. Conventional family planning services, in which clinic services are promoted by field workers during home visits (much like the usual PopCom agency approach in the Philippines).

3. Adaptive family planning services, in which clinic services and field workers follow a socio-linguistic approach to family planning; terms for family planning methods are carefully selected so as to maximize their familiarity and meaningfulness to villagers. For instance, the idea of child spacing is likened to agricultural analogies such as the spacing of rice plants or of mangoes on a branch. Thus, this approach starts with the familiar and works toward making family planning ideas compatible with previous beliefs.

Thailand*

A national family planning program was begun in 1968 as the "Family Health Project" in the Ministry of Public Health, initially without benefit of a national policy or the use of public communication activities about family planning. In March, 1970, a national family planning policy was announced, and the Family Planning Project was organized in the Ministry of Public Health. This Project receives financial and technical assistance from U.S. AID, the Population Council, and various UN agencies (UNICEF, WHO, UNESCO, ECAFE, and

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*This section is based on various publications about the Thai family planning program, plus personal interviews with (1) Dr. Winich Asavasena, Deputy Director of the National Family Planning Project, Department of Health, Ministry of Public Health; (2) Scott Edmonds, Office of Health and Population Planning, USOM (AID); (3) Dr. Allan Rosenfield and Dr. J. Oscar Alers, Population Council advisors to the National Family Planning Project; and (4) Dr. Robert Burnight, Carolina Population Center advisor to the Center for Population and Social Research, Mahidol University.

UNFPA). The Family Planning Project is highly integrated with MCH, medically-oriented, and clinic-based.

The early years of the family planning program in Thailand have been a sprakling success in terms of the rate of adoption of family planning methods. Whether such encouraging results will continue in future years remains to be seen; one possible reason for some apprehension is the experience of several other Asian countries, who have found that once the first 15 or 25 per cent of the fertile audience have adopted, the program bogged down in trying to reach the less receptive "hard-core." This reasoning is why Thai family planning officials are interested in conducting a non-birth incentive experiment in the near future, so that the first results will be available by 1974 or 1975, when the national program may need them.

Three family planning methods are featured in Thailand; in order of importance, they are pills, IUD, and sterilization (mostly female). In general, the Thailand program is going amazingly well: There were about 350,000 adopters in 1971,* representing about 8 per cent of all fertile couples. This rate of adoption is high and still increasing, in spite of a general lack (1) of mass media communication about family planning (which has only recently begun in one of the four regions of Thailand), and (2) of family planning field workers (although general health personnel devote some efforts to family planning field work). Much persuasive communication about family planning seems to come via interpersonal channels from previous adopters; about 90 per cent of adopters report this as their main source of information. Unlike many other Asian countries, in Thailand the rate of adoption is about as high in rural areas as

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*Up from 225,000 adopters in 1970.

in the cities.

Why does family planning diffusion proceed so rapidly in Thailand? The country has a total population of about 34 million, with a 3.1 per cent rate of population growth. The target population (for family planning) of married women in the fertile age range is about 4.6 million. Thailand is heavily rural and 80 per cent of the population are employed as farmers. Women are almost half of the total labor force, and about 40 per cent of all married women are employed outside of the home, a very high figure in Asia. This employment may provide one of the pressures for family planning. For this, and other reasons, there is a high degree of perceived need for family planning by Thai women; various KAP surveys show that about 70 per cent of fertile women want no more children.

Also, there are currently over 3,300 clinics offering family planning services in both rural and urban areas. In terms of our model of family planning behavior (Figure 1), Thailand offers an illustration of a situation in which both (1) perceived needs, and (2) accessible services, are so strongly felt, and so widespread, respectively, that even slight cues-to-action have a major impact in securing adoption. For instance, the postpartum approach has been relatively more successful in Thailand than in most other countries. Under such conditions, we would expect that adopter or diffuser incentives could have an important effect.

No incentives to adopters or to diffusers are currently paid in Thailand,*

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*Although a study of alternative types of field workers by the Center for Population and Social Research at Mahidol University includes a diffuser incentive as one alternative. Further, Dr. Toshio Yatsushiro of the University of Hawaii School of Public Health has proposed an experiment on adopter and diffuser incentives in Thailand, to be conducted through the School of Public Health, Mahidol University.

other than in the 15 hospitals in the postpartum program, where a payment is made to the nurses who contact the adopters.* Thai officials have felt in the recent past that it was not necessary to pay incentives. As a result, we do not know how much more effective the program could have been with incentive payments.**

One might expect that the most immediate research need in Thailand would be for an experiment on the effects of contraception adopter incentive, but Thai family planning officials express greater interest in an experiment on a non-birth adopter incentive. As pointed out elsewhere in this report (Chapter 6), the two types of incentives can be tested in the same experiment.

An experiment on a non-birth incentive was proposed and considered by the McCormick Missionary Hospital (Chang Mai), one of the pioneering private hospitals in family planning research and programs in Thailand, in November, 1971. However, interest in this proposed experiment has since died.

The idea of experimentally testing policy alternatives through experimentation is an accepted approach in Thailand. For instance, one of the early and important researches about the communication of family planning ideas in rural Thailand was the Potharum study, conducted by the Institute for Population Studies (IPS).

There are two population-related research institutes in Thailand, both

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*The incentive payment is made (on the basis of the number of adopters achieved per year) to each hospital, thus constituting a sort of group diffuser incentive. Seventy bahts (≈ 3.50 U.S.) are paid for female sterilization, 40 bahts (≈ 2.00 U.S.) for IUD adoption, and 10 bahts (≈ 0.50 U.S.) for each pill adopter. The hospital director then divides these funds according to guidelines provided by the Population Council postpartum program, so that about half of the incentives go to the nurses who recruit the adopters.

**The concept of incentives, however, is not foreign to Thailand, in that until 1955, a bonus was paid by the government to promote large families.

located in Bangkok:

1. The Institute for Population Studies (IPS) at Chulalongkorn University, that receives assistance from the Population Council. IPS was founded in 1966, and now provides M.A. degree training in demography. A three-year study is being conducted of the fertility behavior of a national sample of rural and urban Thais, and this research occupies most of the attention of the IPS staff at present. IPS limits its research interests rather strictly to demographic research topics, but is considering broadening them somewhat.
2. The Center for Population and Social Research (CPSR) at Mahidol University, that receives assistance from the Rockefeller Foundation through the Carolina Population Center. This inter-faculty research institute was founded in 1966. Research completed or underway deals with the performance of various types of family planning field workers,* KAP surveys, and with the organizational aspects of family planning.

CPSR seems to be the more appropriate research institute to conduct field experimentation on family planning incentives, in terms of its major interest in the behavioral aspects of family planning programs. In contrast, IPS concentrates on more strictly demographic aspects of the population problems of Thailand. Further, CPSR is connected with the only School of Public Health (at Mahidol University) in Thailand, where most family planning and public health officials receive their training. This School has worked intensively for

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*This study was initiated at the request of the government's Family Planning Project, and is administered by a joint committee composed (1) of program personnel from the Project, who carry out the treatments (various types of family planning field workers), and (2) of researchers from CPSR, who are responsible for conducting the evaluation of these alternative field worker approaches. This type of research/action organization is a good model for incentive experiments.

several years in a rural district of about 60,000 population near Khorat, a city located about 110 miles from Bangkok on an excellent highway. This district is used as a research site, as well as a training locale for students. The area near Khorat might possibly serve as a location for a family planning incentive experiment, in the sense that it is fairly typical of populous Central Thailand, and convenient to Bangkok, but far enough away to be outside of the city's urbanizing influence.

Another possible research organization with the capability for conducting a field experiment on family planning incentives in Thailand is the Evaluation Bureau of the National Family Planning Project in the Ministry of Public Health. This Bureau, advised by Dr. Oscar Alers of the Population Council, is presently conducting research and analysis of the Thai family planning program. Although it has not yet conducted experimental studies, such researches are within its scope of activities. They would provide "feed-forward" (as opposed to the program feedback from studies now underway) to the family planning program about possible policy alternatives. An advantage of the Evaluation Bureau is that coordination of the experimental research activities with the experimental treatments (applied by the National Family Planning Project) would be facilitated.

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